

THE IRON AGE

A Review of the Hardware, Iron, Machine and Metal Trades.

Published every Thursday Morning by David Williams Co., 232-238 William St., New York.

Vol. 73: No. 8. New York, Thursday, February 25, 1904.

\$5.00 a Year, including Postage.
Single Copies, 15 Cents.

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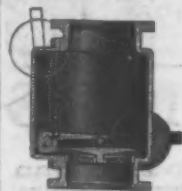
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THE IRON AGE

THURSDAY, FEBRUARY 25, 1904.

STEEL STRUCTURES IN THE BALTIMORE FIRE

Protected Steel Frame Buildings which, After the Conflagration, were Left Standing Structurally Intact. The Effect of the Fire upon Other Types of Buildings. Details of Construction, Showing Lessons in Fire Proofing Taught by the Fire.

After the smoke of the Baltimore conflagration had commenced to lift, when the ruins began to cool and after the daily prints had proclaimed that "the steel frame fire

type of construction. Those structures had stood a test for which no building was ever designed, and with devastation all about them they pointed not only to their own



FIG. 1.—THE CONTINENTAL TRUST BUILDING.

Baltimore's tallest and most modern structure. Despite the terrific heat to which it was subjected, it was found upon examination after the fire to be in plumb and capable of being repaired at comparatively slight cost.

proof buildings in Baltimore burned up as if they were made of *papier maché*," engineers and architects of world-wide reputation assembled to climb over the *débris* and ascertain why their efforts of years should have been "destroyed like grass in a prairie fire." And they found instead of the picture first held before them just the reverse conditions. For towering above low mounds of brick and stone and an occasional fragment of upright wall they saw the giant structures standing erect as monuments to the efficiency of the fire proofed steel cage

superiority, but told the story of the awful test which they had survived structurally intact.

The best evidence possible of the "fire proof" qualities of these edifices is found in the fact that they still stand, while all around was destroyed. That was as much as could possibly have been expected, for they were fire proofed only so far as the steel structure itself is concerned, and this was saved.

No effort had been made to guard against the attack from without to which the buildings were subjected.

They were all filled with inflammable materials, had wooden window frames on the outside and wooden sash frames and doors within, and in the large majority of cases had wooden flooring laid over the concrete floors. Even though the windows on one or two sides of a building were protected by fire shutters, which was not generally the case, fire attacking the unprotected windows entered the building, raking it from floor to floor, and in many cases destroying the fire shutters, so that they hung in ribbons or fell from the building entirely. The spread of the fire was so rapid that oftentimes one of the tall buildings would stand directly in the midst of furious

suction, which must have been induced by the intense heat high above the pavement, is given by many as the explanation of the excellent condition in which some of the low fire proof bank buildings remained throughout the ordeal and also for much of the freakishness of the fire's course in leaving some things untouched and completely consuming others around the edge of its path.

The experts who have made careful study of the catastrophe are united on one point, which stands out very prominently—that is, that the fire proofing of the steel members in the tall structures was good, but that what was needed to further protect the buildings was

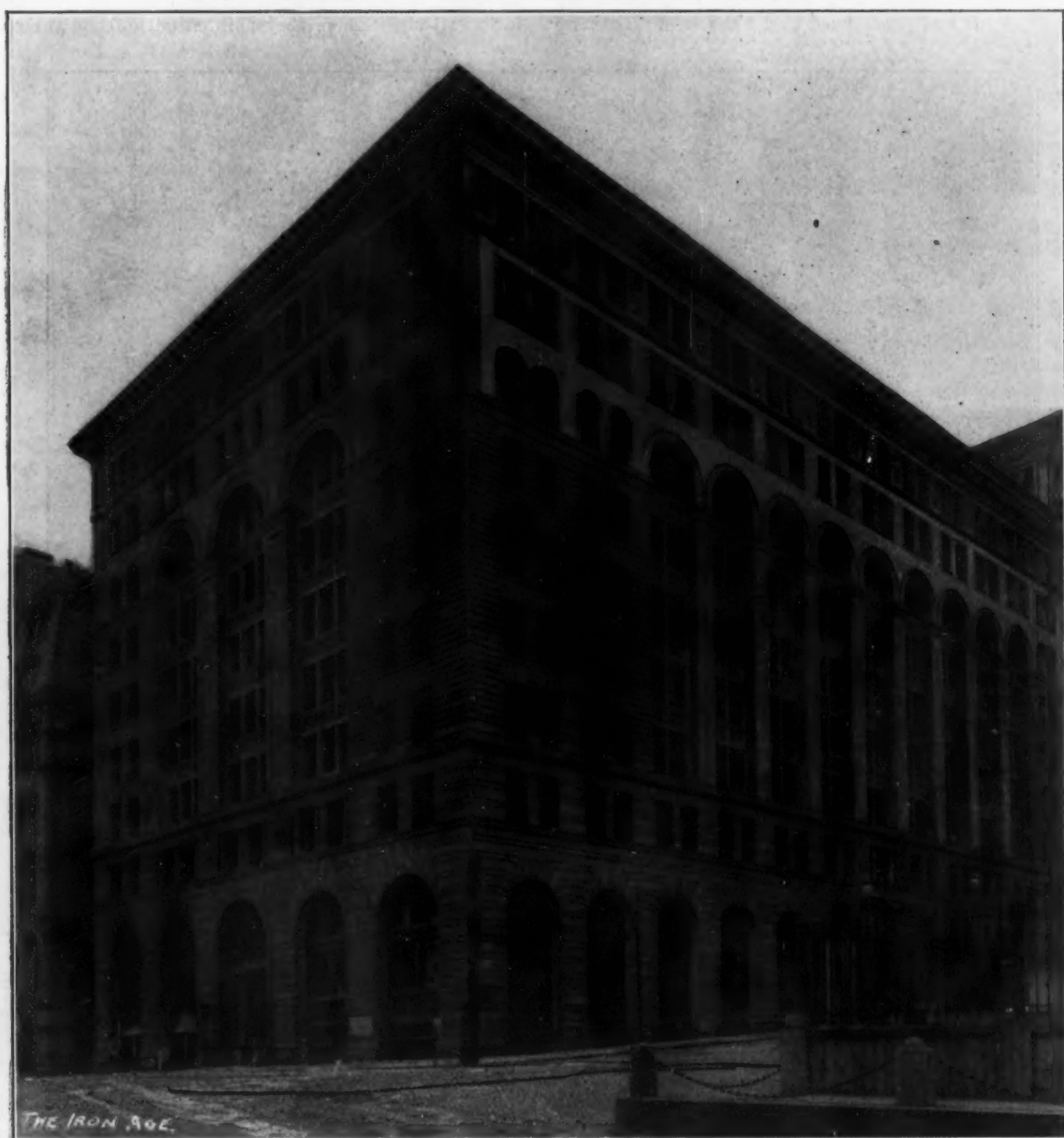


FIG. 2.—THE EQUITABLE BUILDING

While its exterior appearance is better than that of several of the other fire proof structures, it has really suffered worse than any of the others, due to the faulty design and construction of the floor arches, which resulted in considerable damage to the interior of the building.

flames coming from all manner of "tinder boxes" loaded with highly inflammable materials, the flames licking up the four sides of their tall conductor and uniting over the top of the building, to be tossed on by the high wind against the next tall structure standing in their path. Under such conditions it is no wonder that the mullions between windows were warped and twisted when of steel, fused when of cast iron and cracked and crumbled when principally of stone or terra cotta. The condition of the upper floors of all the tall buildings shows that the heat was much more intense higher up than nearer the street level. This, of course, is quite natural, and, together with the eddies and currents of air created by the terrific

a system of outside fire protection or some means of keeping the flames outside. As to methods of attaining this end opinions differ, and while many believe that wired glass should be used in connection with protected metal window frames, others say that steel shutters would suffice if they covered all window openings. Still others hold to an outside sprinkler system, coming from various floors and forming a sheet of water around a building.

Referring to water recalls the fact that while the fire test of these buildings has been most severe, there was little or no water thrown upon them while burning, and therefore data relative to the effect of fire and water

combined upon the buildings are not at hand. In speaking of his deductions while inspecting what remained after the fire, Harry D. Gue, a prominent fire insurance engineer of New York, said:

Prominent, if not most prominent, is what in insurance parlance is termed the "exposure hazard." By this is meant the likelihood of one building, no matter what its construction may be, to become ignited from a fire in a neighboring or contiguous building. Statistical summaries of the causes of fire loss are not wanting. It is the consensus of opinion of the best authorities that between one-third and one-half of the total fire loss of this country—amounting to upward of \$200,000,000 annually—is due to the results of this same "exposure hazard."

In this connection it strikes me that the most obvious lesson to be drawn from the conflagration in Baltimore concerns itself

Had the buildings contiguous to the structure in which the Baltimore fire originated been provided with efficient window protection, there is every reason to believe that they would have withstood the contribution of flame until such time as the fire department could have controlled the original blaze. Taking fire almost immediately, however, the firemen's attention was diverted largely, and soon a conflagration which no human power could stay was in progress. This is the invariable history of conflagrations.

It is quite idle to advise in a vague way the erection of "only fire proof buildings." Their expense is such that many years must elapse before they become commercially other than the exception.

What can be done, however, for not only new buildings but for buildings already erected, and at a cost comparatively small, so far as the results are concerned, is to provide every



FIG. 3.—THE MARYLAND TRUST BUILDING.

Its facing, which was of limestone on the three lower stories and ornamental terra cotta above, offers an excellent example of their fire resisting qualities. While the terra cotta chipped considerably, the stone facing on the lower stories was in much worse condition. The floors and walls are sound, the steel work being protected by terra cotta.

with the fatal weakness presented by window openings in the outside walls of buildings, unprotected against the attack of fire from without.

Buildings having brick or stone walls, when erected in accordance with the laws of any city in America, are of sufficient strength to withstand the attack of ordinary neighboring fires, provided the outside window and door openings are made as fire resistant as the walls they pierce.

Such protection is thoroughly practical and may be accomplished by either of two means: by iron shutters, or by wire glass windows in metal frames. Both types of protection are approved by fire underwriters, although wire glass windows are preferred by many on account of their obvious advantages. They do not require to be closed in a moment of emergency, being an integral part of the building; they are not subject to corrosion, they are eminently sightly, and when made of polished plate are suitable for use in building fronts where iron shutters are quite inadmissible. And, above all, they offer a degree of fire resistance equal to the wall in which they are set.

window and door opening with an efficient fire stop, so that fire in any one building may be confined therein.

The question is not infrequently asked, Is it possible to erect a building that is thoroughly fire proof? At the very outset it should be stated that the term "fire proof," in speaking of a building, is a misnomer. At the congress of fire engineers in London last year it was decided that the term fire proof in the matter of the construction of buildings should be eliminated and that the term "fire retardant" should be used in its stead. It was then justly stated that a great deal of harm has been done by the use of the term "fire proof." Turning to our question, then, is it possible to construct fire proof, or, rather, fire retardant, buildings? I say that the great conflagration which has visited Baltimore forever answers that question in the affirmative. This question is one of great interest to men who have wealth to invest in improved city real estate. These investments are dependent in their value on two things: First, the immediate income from the rents; secondly, the ability of the structure to withstand the effects of corrosion and intense

fire. From the Baltimore conflagration it can be learned that in this city there were many buildings away behind in construction, while there were others strictly up to date. It is perfectly well known that in a conflagration such as visited this city everything combustible in a building will burn up. When a fire once gets beyond the control of a local fire department it becomes simply a matter of change of the direction of the wind or the amount of combustible material in the path of the fire to say what the extent of damage will be.

There were several buildings in the recent fire which demonstrate the possibility of erecting fire retardent structures. Even the Equitable Building, the construction of which was not up to date, was not damaged, in my opinion, more than 50 per

cent. chances for improving upon the methods of fire proofing and construction which were used in the Baltimore "sky-scrapers," the most important was doubtless a tendency noted to make the steel sections too light. Of course, the light design of the steel frame prohibited the use of heavy and in some cases substantial forms of fire proofing. The most noticeable instance of this is in the floor arches. It was the opinion that in many cases these were given too wide a span, and the beams were too light to safely hold the proper weight of arch. It has been

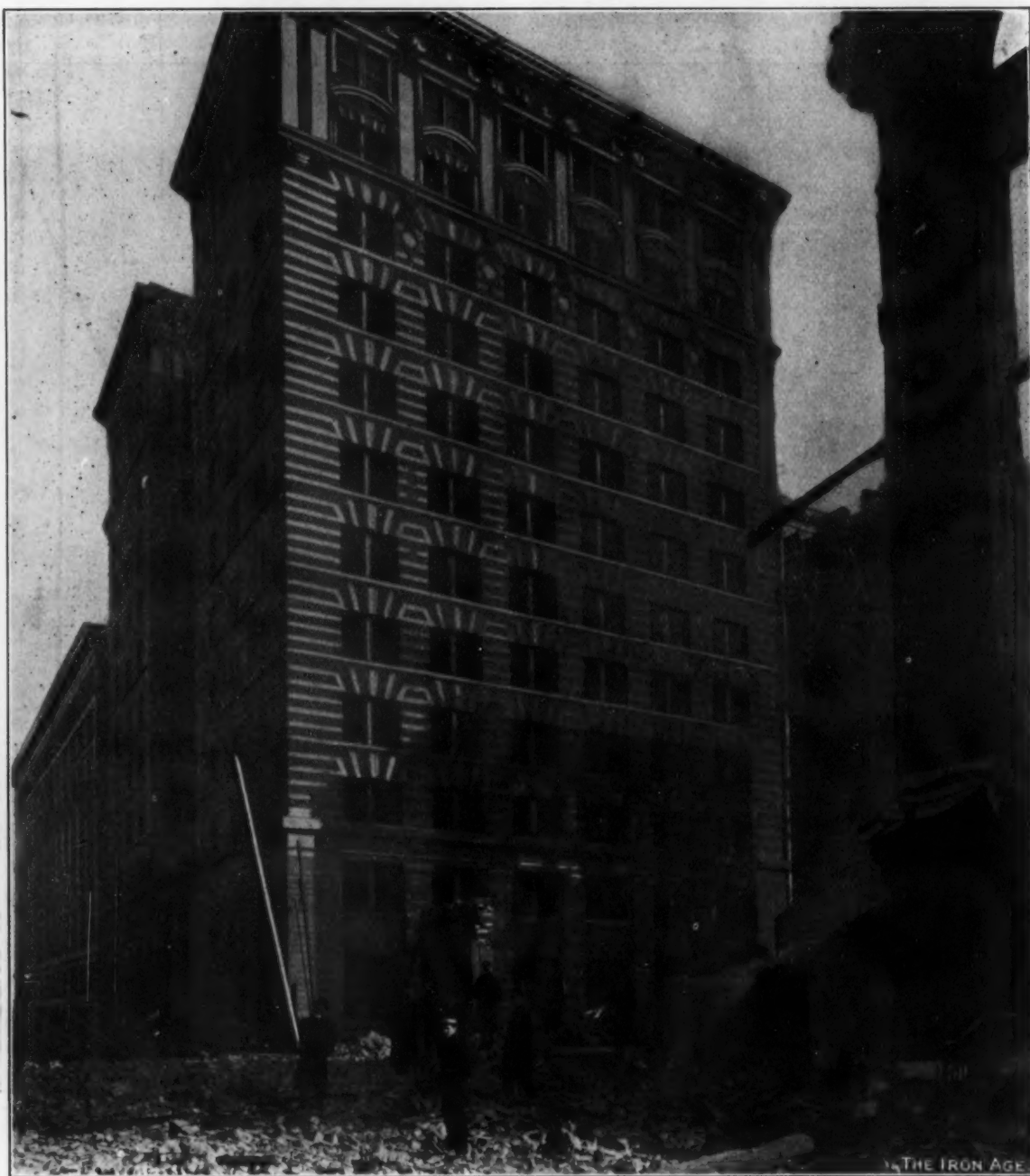


FIG. 4.—THE CALVERT BUILDING.

The walls are in good condition, being brick, with terra cotta trim above the second story, the first two stories having limestone trim. The terra cotta floor arches are intact throughout, and as a rule the terra cotta partitions are standing in good condition. The steel structure, which was incased in terra cotta, is uninjured with the exception of a buckled column on the seventh floor.

cent. If the steel construction is properly protected with either hollow tile or concrete the investment in large structures, if covered by insurance to 50 per cent. of the cost of the building, is a safe and profitable one.

This interview may be taken as typical of the experiences of many engineers and architects who have been on the scene and given the matter careful study.

Steel Sections Often Too Light.

Summarizing the points which have been mentioned by experts in various lines of the building trades as

suggested that these arches should not be of more than 5 feet 6 inches span, and should not be built of less than 9-inch tiling on 12-inch beams. They should also be provided with two tie rods each. The construction recommended is shown in Fig. 30, and is dealt with at greater length on a succeeding page. The general practice in Baltimore has been to place about 1 inch of terra cotta covering around the lower flange of the floor beams. It has been suggested that this should be just doubled, as in very many cases the inch covering has cracked and fallen

to the floor. Plaster composition partitions were proven of no value in resisting the fire, as wherever they were used they were completely destroyed. The consensus of opinion at Baltimore last week regarding the protection of steel columns was that at least 3 inches of terra cotta covering should be afforded, and that special covering should be provided for covering the piping outside of the covering around the column.

Another point shown is that the lightening of the terra cotta tile is a serious mistake, as with their thin webs, as now made, they do not withstand the heat as they should, and as a result the lower web cracks and falls to the floor below during the process of expansion and contraction during and after the fire. It was found that in terra cotta partitions and coverings to columns the tile of 8 inches in width or less held together better

was a great disappointment to the architects and engineers who witnessed the manner in which it broke away under heat. The more ornamental this work was the worse was the effect shown upon it by the heat. This is plainly demonstrated by the Maryland Trust Building, while the plainer designs employed in the Calvert and Equitable buildings showed far greater endurance. The brick work stood the heat best of all the building materials employed in the façades of the fire proofed buildings. On the whole, the results of the fire show very pointedly that clay products stood the test most admirably. Plain brick façades outside of the protected steel skeletons without any other ornamentation would, it is held, have survived the fire uninjured. The low style of protected steel frame bank structure stood the fire remarkably well wherever the best precautions were taken



FIG. 5.—THE COURT HOUSE BUILDING.

The St. Paul street elevation, showing the excellent condition of the building at the Fayette street corner, where fire proof steel structures protected it; the *Herald* Building on one side and the Calvert Building in front. At the rear end the stone work is badly spalled and broken. Opposite this portion of the building was the non-fire proof Law Building, which was completely destroyed.

than those of more liberal outside dimensions. It was also found that the placing of a piece of wire cloth or similar substance in the joints, thus holding the cement from crumbling, would assist in holding the tile together. The failure of the tiling to hold together in partitions was noticeable in several buildings, but it was said that the heavy blasting among the ruins was largely responsible for this condition. The tile are, however, in good condition, and there will be a salvage of from 75 to 90 per cent. in connection with the terra cotta partitions which fell. The exterior of buildings in which a large amount of stone was employed suffered the greatest damage, for all of the stone work which came in contact with the fire was badly cracked and spotted. The removal will entail a considerable expense to the owners. While ornamental terra cotta work withstood the heat better than any stone, it

in the direction of keeping the fire out of the windows and skylights.

The Buildings in Detail.

Taking the surviving buildings individually, the one which has attracted the greatest interest is the Continental Trust Building, shown in Fig. 1. It is located on the corner of Baltimore and Calvert streets, and is 16 stories high. D. H. Burnham & Co. of Chicago are the architects who designed the building. It was completed about a year and a half ago, and at that time was claimed to be the most approved type of protected steel cage construction in every respect. Several days after the fire D. H. Burnham inspected the building, and submitted the following report to the owners:

"I have minutely examined the steel structure of your building on the corner of Baltimore and Calvert

streets from the basement to the roof, and find the same intact and good as the day it was put up. This applies to the supporting columns, the girders and joists. A few of the apron beams between the supports of the windows of one story and the sills of windows above in the court must come out, as they are warped. These, however, have nothing to do with the main structure, as they only carry said aprons, and they can be taken out story by story without reference to any other part. The structural parts of the floors of the building are unaffected

remains perfectly intact as to the steel skeleton. The fire proofing, which is of terra cotta, is in good condition, requiring but slight repairs. In a number of the floor arches the lower flanges of the tile have cracked and dropped to the floor, and the protecting tile to the lower flange of the floor beams have also cracked and fallen. The terra cotta partitions, as a general rule, are standing in good condition. The ornamental terra cotta work in the front and side façade is badly cracked in places, as is also the terra cotta of the mullions, particularly



FIG. 6.—THE UNION TRUST BUILDING.

This building was subjected to a more intense heat than any of the other fire proofed steel structures, due to the dynamiting of a building opposite while it was burning. The limestone facings will be seen to be badly cracked and spalled. Several of the cast iron mullions are injured and the iron stairways were destroyed. The frame of the building, which was protected by terra cotta, is in good condition, as are also many of the terra cotta partitions.

and need no removal. I advise you to at once proceed to repair this building."

S. Davies Warfield, president of the Continental Trust Company, issued the following statement as to the condition of the vaults:

"Our vault has been opened and entered by the officers of the company and is in perfect condition. The time locks have been inspected by the designer of the vault and are entirely uninjured. The inside of this vault is in precisely the same condition as when erected. The storage vaults of the company are also entirely uninjured. When the city authorities issue the necessary permits for clearing away the *débris*, in order that free access may be obtained, the patrons of the company will be immediately notified."

As stated in the report of Mr. Burnham, the building



FIG. 7.—THE MERCHANTS' NATIONAL BANK BUILDING.

This building was badly gutted and had its stone facings seriously injured on one side, but was found to be in excellent condition on the lower floors at its opposite side. The banking room on the lower floor survived the conflagration without injury to the elaborate decorations, while the upper floors are completely cleaned out even to the fusing of chandeliers. The floors, partitions and protected steel frame are in good condition.

between the tenth and thirteenth floors, which seemed to suffer from the greatest amount of heat. The greatest damage done to the exterior of the building, however, was in the rear. Here the outer facing is of brick, which, instead of being bonded in the laying, had metal ties substituted. The cast iron window mullions and some of the sills and curtain beams were warped and twisted, and in several places caused the cracking of the brick facing. Views of this wall are shown in Figs. 14 and 18. There is a diversity of opinion on the subject, but several prominent architects and builders have voiced the belief that this wall will have to be rebuilt.

The Equitable Building.

The oldest of the steel skeleton fire proof structures and the one which showed the greatest actual damage

after the fire was the Equitable Building, shown in Fig. 2. The exterior of this building belies its general condition, for it is badly injured so far as the floor arches and interior are concerned. It was constructed in 1892 on the southwest corner of Calvert and Fayette streets and is ten stories high. The damage wrought in the interior of the building is depicted in Fig. 28. During the fire floor panels covering almost half the area of the building fell from top to bottom. This was due not only to the faulty construction and design of the arches, but also to



FIG. 8.—THE COMMERCIAL AND FARMERS' NATIONAL BANK BUILDING.

This building presents a most striking illustration of the advantage of fire proofing. The first story, or banking floor, was completely fire proofed and came through the fire unscathed, as shown in Fig. 24. The upper stories and roof were non-fire proofed and were completely destroyed, as were the adjoining buildings.

the large amount of wood employed in the flooring. As the wood burned from under them the safes on every floor fell to the arches, which gave way, with the result that the safes continued to go through the successive floors until reaching the pile of rubbish in the basement. Since the fire additional panels have fallen from time to time, and last Thursday the greater portion of six floors came down. The partitions, which were of a plaster composition on wire lath, were entirely destroyed. These were placed on the wooden flooring and naturally failed when the wood burned from underneath them. The center row of cast iron columns used in supporting the floor beams are in good condition, and the steel columns in the walls were well protected. A thorough examination of this building has not been made, owing to its dangerous condition. From the exterior it will be seen that the fire was hottest in the upper stories, burning out the window mullions on the eighth and tenth

floors. A copper sheathed staircase in the court in the rear of the building was left in perfect condition, although the glazed tiling with which the court was faced fell to the bottom of the court.

The Maryland Trust Building.

The Maryland Trust Building, which is shown in Fig. 3, is located on the northwest corner of Calvert and German streets, and was built about four years ago. As a large amount of ornamental terra cotta is used above the third story and limestone trim is employed on the first three stories, an excellent opportunity for a comparison of the two materials under fire is offered. The terra cotta did not survive as well as was expected and was badly broken and chipped. It showed great superiority over the limestone beneath it, however, despite the fact



FIG. 9.—THE NATIONAL UNION BANK BUILDING.

There were several buildings of this type within the path of the fire. This one is in a better state of preservation than any of the others. The interior is not badly injured, although a large skylight, which was partly broken by falling wreckage from higher surrounding buildings, admitted fire within, as did also some of the steel shutters.

that the upper stories of the building were put to the severest test. The interior of the building is in good condition, the terra cotta fire proofing having offered ample protection to the steel columns, and the terra cotta floor arches withstanding the strain well. The same effects were shown in the fire proofing as were exhibited in the other similar structures—namely, that where it was thoroughly performed it offered ample protection.

The Calvert Building.

One of the best examples of modern "skyscraper" construction is found in the Calvert Building, which is located on the southeast corner of Fayette and St. Paul streets. It is shown in Fig. 4. Although subjected to an intense heat for a considerable period, this building stands to-day in good condition, both as to exterior and interior. It is 12 stories high, and was constructed about three years ago. The first two stories are built of Indiana limestone, and the walls above are of brick, with terra cotta trim. On the St. Paul street side the building was left open to the most serious attack of flames, and it will be noted that the stone facing is badly spotted. The terra cotta trim is also slightly chipped immediately about it, but otherwise injuries are not very noticeable. The front of the building is slightly injured around the windows on the seventh, eighth, ninth and tenth floors. It was also on these floors that the greatest damage was wrought to the interior. Here the partitions, which were

of terra cotta, have fallen in numerous cases, but this was chiefly because they were sash partitions containing a considerable amount of wood work around the openings for the sashes. The floor arches are in good shape throughout the building, and the solid partitions withstood the fire successfully. On the seventh floor there was a great deal of inflammable material, and the heat there was apparently greater than on any other floor of the building. The piping within the covering of the columns warped and shattered the covering on this floor, as shown in Figs. 26 and 27, and described more fully on a succeeding page. The condition of this building illustrates very forcibly the fact that considerable damage is done to an interior by the burning of the inflammable equipment of the offices, together with the books, files, &c., usually kept. There were several unoccupied offices

well, owing to the ample protection to the steel structural members. There was but one terra cotta partition in this building, and this remained intact. The remainder of the partitions were all of a form of plaster composition, and they were all destroyed, a considerable quantity of the composition being reduced to a white powder. The columns were all well protected after the fire. The floor arches were of 6 feet 7 inches span and 27½ feet long. Fifteen-inch beams were used, and between these 12-inch tiles were placed. The under flanges of the beams were protected with 1-inch terra cotta, some of which cracked and fell off. It is reported that two charges of dynamite were discharged under this building before the fire reached it without disturbing it. The excellent condition of the floor arches is attested by the fact that the top floor was filled with heavy typesetting machinery, which fell over

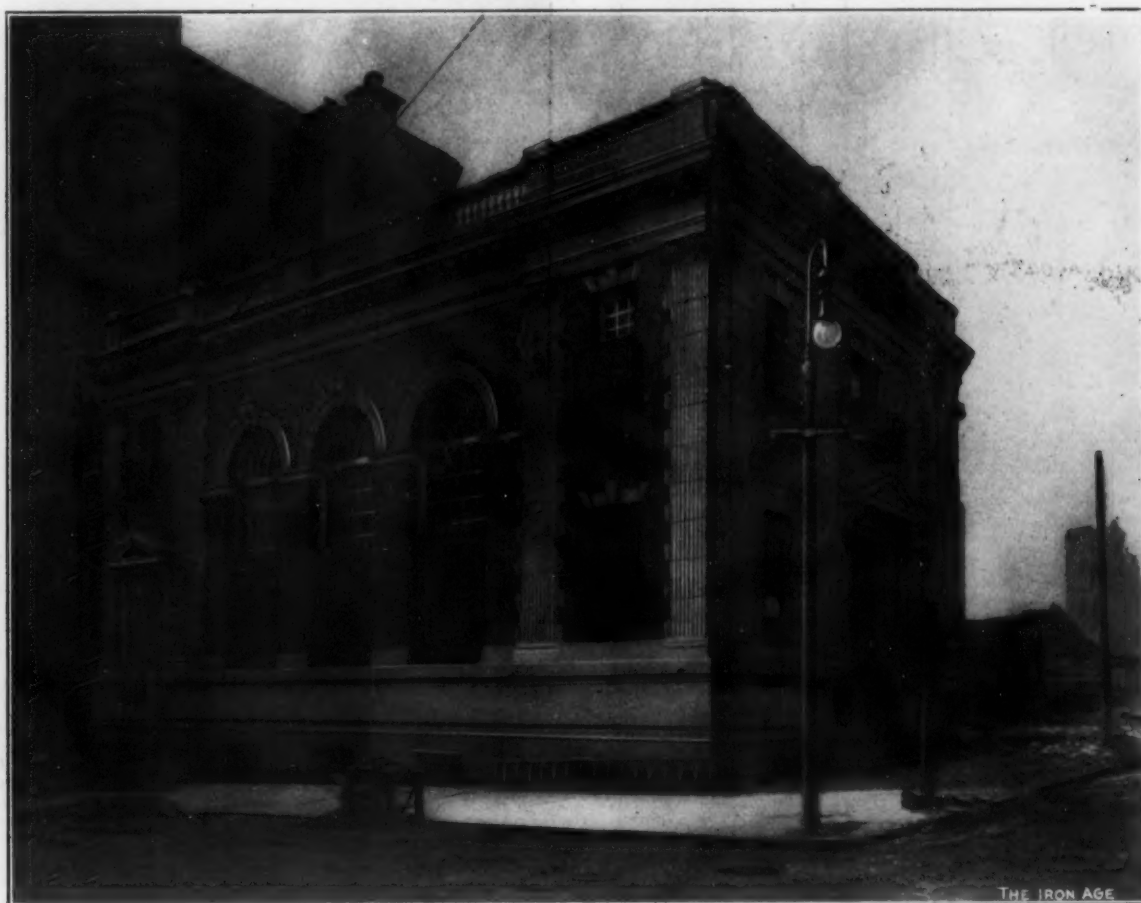


FIG. 10.—THE BANKING HOUSE OF ALEXANDER BROWN & SONS.

Another illustration of the marvelous escape of the low building. Although surrounded on one side and rear by the ruins of buildings totally destroyed, this building withstood the terrible heat without even the breaking of the window glass. The fire proof roof and wire glass on the west side and rear of the building are given a good deal of credit for protecting it, as is also the Baltimore & Ohio Building, which is directly opposite.

in the building, and these rooms were damaged but very little, while those regularly in use were severely gutted. In this building the lower web of the tiling used in the floor arches also cracked and fell to the floor below. Some of the covering over the lower flanges of the floor beams also cracked and fell off, but the beams were uninjured. On the lower floor of this building the banking room, which occupied the St. Paul street side, was completely gutted of all that was inflammable. The corridor in the center of the building and a small office near the entrance were left practically unharmed, as were the elevators in the bottom of their shafts. The large room across the corridor, being unoccupied, was uninjured, excepting for the falling of plaster decorations from the ceiling. A covered bridge connecting this building with the Equitable Building, which was built of steel and surrounded by terra cotta tiling, was left intact.

The Herald Building.

On the northwest corner of St. Paul and Fayette streets is the *Herald* Building, which withstood the fire

without injuring the floor. A portion of this building is shown in Fig. 5.

The Court House Building.

In Fig. 5 the St. Paul street elevation and also a small corner of the Fayette street façade of the Court House Building illustrate the manner in which it was protected by the fire proof structures, although they themselves were stripped of all that was inflammable. The corner of the Court House Building in the foreground, it will be noted, is in excellent condition. It is protected by the *Herald* Building on one side and the Calvert Building on the southeast corner. The Equitable Building, still further east on Fayette street, also afforded similar protection. In the rear of the *Herald* Building on St. Paul street the Law Building, a non-fire proof stone structure, stood. It was completely destroyed, and the flames reached across the street, licking the granite Court House Building opposite, badly cracking and spotting the stone, as shown in the background of the illustration.

The Union Trust Building.

The Union Trust Building, which is illustrated in Fig. 6, is located at the northeast corner of Charles and Fayette streets, or directly opposite a section which contained a number of retail stores filled with most inflammable materials. While these buildings were burning some one blew them up with dynamite, creating a most furious blaze. The wind was blowing directly toward the Union Trust Building, which stood as a wall before the fiercest fire directed against any of the steel structures. The result of this condition is shown by the badly broken limestone and terra cotta with which the building was faced. Despite this severe test, almost all of the partitions which were of terra cotta remained standing. A careful examination of the upper floors of

this side of the building, and on the upper floors of the entire structure, the rooms in the lower section of the far side of the buildings were saved, the banking room on the ground floor being left in excellent shape.

A Fire Proof First Floor.

A very interesting contrast between fire proof construction and the other kind is shown in Fig. 8. This structure, which was owned by the Commercial & Farmers' National Bank, had its entire first floor completely fire proofed. The upper stories were, however, of mill construction, and the building was surmounted by a non-fire proof roof. As is very forcibly illustrated by the engraving, the first floor remains perfectly unharmed, while above it the building is entirely cleaned out by the fire. The appearance of the stone facing also shows that

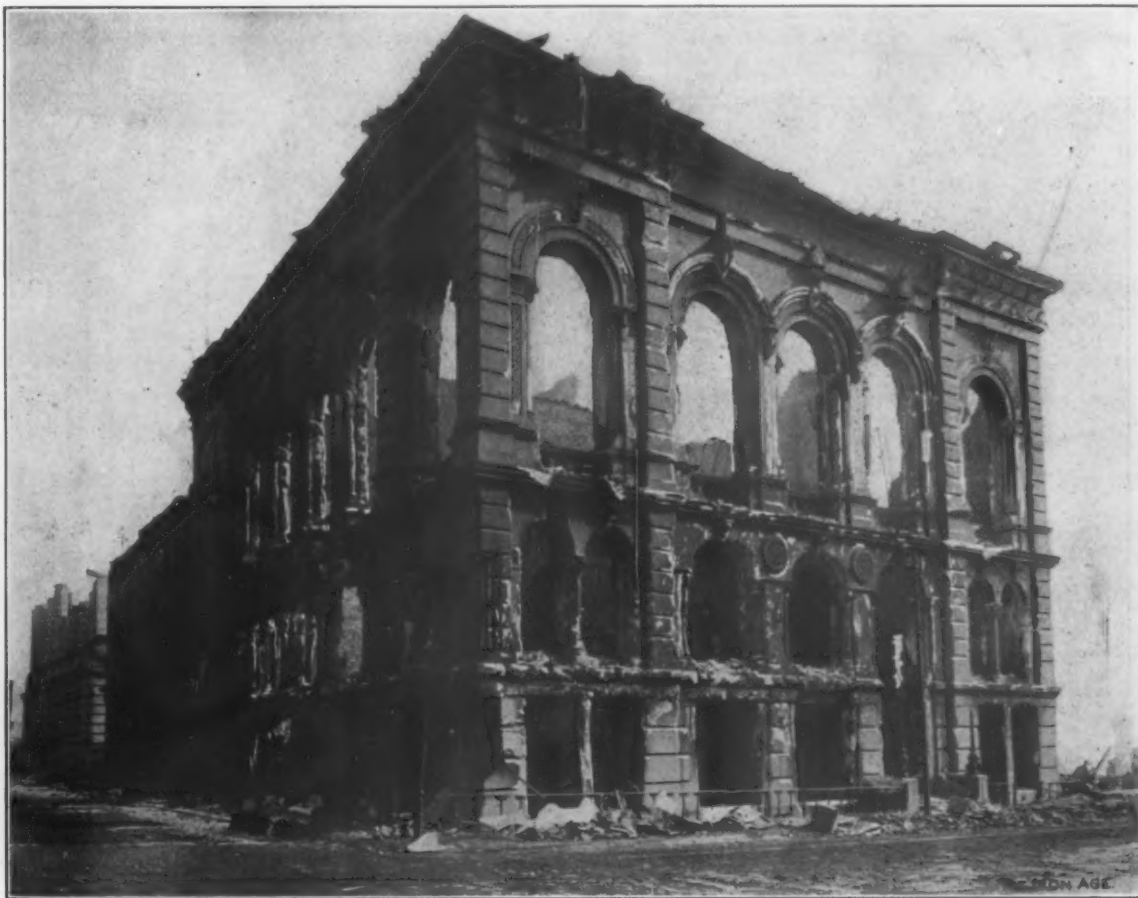


FIG. 11.—THE RIALTO BUILDING.

A low type of stone structure which was in no wise protected against fire. The result, it will be seen, was complete destruction. The injury to the stone is very apparent. With its inflammable roof the building made a veritable furnace for its contents, which were completely consumed. The partly completed Custom House is faintly visible in the left hand corner of the engraving.

the structure has been impossible, as the iron stairways, which had marble treads, were destroyed. So far as has been ascertained, the building is structurally in good condition. The floor arches remain intact as far as can be seen from below. The window openings, it will be noted, were terribly scorched by the fire entering the building from the nearby buildings. The structure was erected about four years ago.

The Merchants' National Bank Building.

Another building which offers excellent contrast between a completely gutted portion of it and a part which was but little damaged is illustrated in Fig. 7. It is the Merchants' National Bank Building, standing on Water street between South and Holliday streets. In the left-hand corner of the engraving is the Rialto Building, of stone nonfire proof construction. This was not only an easy prey for the flames, but the burning of it set fire to the fire proofed structure opposite, and the effect of the fierce heat can be seen on the side of this building. While all that was inflammable was completely consumed on

the fire burned most fiercely from within and that the building was not attacked by flames from a building in front of it. This leads to the conjecture that the non-fire proof roof was accountable for the presence of fire within the building. The illustration also shows that it was only the complete fire proofing of the first story which saved that portion of the structure. It will be noted that the adjoining building, that of the First National Bank, was completely gutted within even to the main floor. An interior view of the fire proofed floor of the Commercial & Farmers' National Bank is presented in Fig. 24, showing the fine condition of the room and its fixtures.

An Unprotected Skylight.

In Fig. 9 a view of another fire proofed banking floor is presented. It is the building of the National Union Bank, which was erected about three years ago. The exterior, it will be seen, is practically uninjured. The mistake in its construction, however, was the placing of a large skylight in the center of its roof without proper protection. As a result, the falling *débris* and burning

embers from surrounding structures of greater height broke through the skylight and set fire to the interior, doing considerable damage to the fixtures and decorations. The steel shutters on the west side of the building, which were closed against the fire, were apparently not stiff enough, for several of them curled half way under the flames, as shown in Fig. 15, in the center of which the rear of this building is shown.

A Remarkable Escape.

One of the most remarkable instances of the preservation of the low type of single floor banking buildings is found in the case of that owned by Alexander Brown & Sons, which is shown in Fig. 10. It stands to-day in a condition which necessitates but slight repairs to place it back in a condition equal to new. It stood directly

construction, is shown on the square in the rear of the Rialto Building.

The Oldest Fire Proof Building.

The Baltimore & Ohio Railroad Building, which is shown in the center of Fig. 12, is the oldest of the fire proof structures. It is not of the steel skeleton type, however. The floor arches are of brick carried between I-beam girders, supported by heavy brick partition walls. The exterior walls, it will be seen, are of brick, with heavy granite trimming. The building is of unusually substantial construction. It was completely gutted of everything inflammable, and the stone was badly pitted and broken. It was thought directly after the fire that the building was still in good condition, but the tremendous heat had doubtless loosened it up somewhat, which



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FIG. 12.—THE BALTIMORE & OHIO RAILROAD OFFICE BUILDING.

This is one of the old types of wall bearing fire proof buildings. Although apparently sound and intact directly after the fire, it has since been condemned as unsafe, a condition which is largely attributed to heavy dynamiting among the ruins nearby. In the back of this building are the Equitable and Calvert buildings on the right and left respectively. The building of Alexander Brown & Sons is shown immediately in front of it.

In the path of the conflagration, and all of the buildings west of it for a considerable distance back were razed to the ground. In back of it a brick structure was completely demolished. The rear and west walls were provided with wired glass in the windows, which showed magnificent service in keeping the flames from entering the building. The only protection which was had from more formidable structures was furnished by the Baltimore & Ohio Railroad office building directly opposite. It is figured that the wired glass protected the building against the surrounding low structures and that the great wall of fire from the taller structures swept over it.

Fig. 11 shows the hollow shell which marks the site of the old Rialto Building. In its day this was considered a magnificent structure, and the heavy stone walls were expected to withstand any fire. The floor beams were of timber, however, and, as will be seen, the interior was completely consumed. It was the burning of this building which caused the damage to the stone facing of the Merchants' National Bank Building, shown in Fig. 7. The United States Custom House Building, in course of

condition was aggravated by the blasting among the ruins nearby. The building has been declared unsafe by the authorities, and its exact condition is not generally known now. In the foreground of the picture the building of Alexander Brown & Sons is visible, showing the slight damage done to the building in the rear.

In Fig. 13 the path of the fire leading along Fayette street toward the Post Office and City Hall is shown. The formidable front presented by the Calvert Building is vividly depicted. Just east of the Calvert Building the Equitable Building is shown. Directly opposite these structures is the granite Court House Building, which was left untouched on this street, having been protected by the fire proofed "skyscrapers" opposite.

The manner in which the old Baltimore & Ohio Railroad Building was almost hemmed in by fire proofed skeleton steel structures is illustrated in Fig. 14. While the Baltimore & Ohio Railroad Building, which is fire proofed, although wall bearing instead of steel cage construction, withstood the fire fairly well, it will be seen that the steel skeleton type of building was susceptible to



Fig. 13.—A view west on Fayette street, showing the Calvert and Equitable buildings standing on the right side and the Herald Building and Court House on the left side of the street, with the Post Office looming up in the distance. The condition of the large and heavily constructed but non-fire proofed buildings in this vicinity is shown in the foreground, and the warped steel trolley pole conveys an idea of the intense heat which the buildings underwent.



Fig. 14.—Another group view of fire proofed structures; looking south on Calvert street and showing the side of the Equitable Building, the Baltimore & Ohio Railroad Building, roof of Alexander Brown & Sons' building, and the Maryland Trust Building on the right hand side of the street and the Continental Trust Building standing above the ruins on the left hand side.

far greater injury, being left entirely open to attack from the lower nonfire proofed buildings filled with inflammable materials of all sorts. As the Continental Trust Building on the left and the Maryland Trust Building in the distance faced the section where the fire was furious, their value as fire walls can readily be appreciated.

A Severe Test of the "Skyscrapers."

Another instance of extremely severe test upon the "skyscraper" is presented in Fig. 15. The low ruins in the foreground mark the sites of many highly inflammable buildings used as retail stores. Towering above the *débris* on the left is the Union Trust Building, which was almost in a straight line along the path of the conflagration when the high wind took its first course from the starting point of the fire. In an endeavor to check the

better detail. A similar view is taken from the opposite end of the city, looking in the opposite direction, toward the rear of the Continental Trust Building. In Figs 19 and 20 similar views are given, showing the complete waste in which the old style buildings were laid.

The Complete Disappearance of Wood.

The interior of one of the rooms on the first floor of the Continental Trust Building is shown in Fig. 21. While this floor was not subjected to as high a degree of heat as the upper stories, it serves well in showing the clean manner in which everything inflammable was eaten out of the building. It also serves to show the excellent way in which the terra cotta partitions and floors survived the fire. It will be noted that even though the metal window frames are badly bent and warped and the elec-



Fig. 15.—A typical view of the ruins directly after the fire. Looking into the square which was dynamited while burning, creating a most intense heat, which the wind swept directly against the Union Trust Building, which was in its path and served as a wall, greatly protecting the section behind it. The latter building is shown in the left of the picture. The tall structure at the right is the Calvert Building, and the low building of which a side and rear view can be seen in the center is the National Union Bank Building, and projecting beyond its roof is a corner of the *Herald* Building.

course of the flames a building directly in front of the Union Trust Company was blown up with dynamite. The operation was delayed a little too long, however, and the building was in flames before the charge was set off. This, of course, made matters worse than ever, and it was against this awful blaze that the Union Trust Building stood. It practically held the fire at bay there until the wind veered and swept the fire to the southeast toward the *Herald*, Calvert, Equitable, and other important buildings. Several of these structures are shown in the engraving.

The Protection Afforded by the Steel Buildings.

A very clear idea of the way the approaching district to the tall steel skeleton structures was devastated is given in Fig. 16. This view also shows how the group of "skyscrapers" served as protection to the public buildings which lie directly in front and to the left of them.

This point is further illustrated in Fig. 17, which shows the ruins lying in front of the giant structures in

tric light fixtures fused, the terra cotta partitions and protection for the steel structure are in a good state of preservation.

Another interior view of the same floor of this building is shown in Fig. 22. Here an idea of the terrific heat which the fire proofing endured can also be obtained from the *débris* on the floor, all that survived of a complete mercantile office equipment. On the left of the illustration a door opening is shown, with all of the woodwork and the door entirely consumed. This is a typical picture of what remained in the doorways throughout not only this building but all which remained standing.

Marble Decoration.

The poor practice of fastening marble to the terra cotta fire proofing is illustrated in Fig. 23, which shows the corridor of the Continental Trust Building after the fire. As marble has the poorest fire resistance qualities of any stone; it quickly cracks and falls of its own weight to the floor. When it is fastened to the under web of



Fig. 16.—Looking from Liberty street east on Baltimore street, the principal street in this section of the city. The “skyscrapers” to the left of the street in the background served as a wall, protecting the county, federal and city buildings and the surrounding district, until a change in the wind altered the course of the fire southward. The long stretch of ruins from the foreground to the Continental Trust Building, which is shown on the right hand side of the street in the distance, was five city blocks in length.



Fig. 17.—Another view, showing the condition after the fire of the buildings which furnished fuel for the flames which licked the nearby fire proof buildings clean of everything inflammable. This was taken from the corner of Charles and German streets, looking northeast. In the right hand side the Maryland Trust and Continental Trust buildings are shown. Standing on the left is the Calvert, and hugging it closely are several lower buildings, which it shielded from total destruction, although they are badly gutted.

the tile of the floor arches, as was the case in this instance, it not only destroys the fire proofing, but often leaves the steel structural parts which should be protected open to the ravages of the fire. To the left of the picture a section is shown where plaster was used instead of the marble. The plaster ceiling and wall are still intact, showing their better fire resistance properties than the marble.

Fig. 24 is particularly interesting in connection with Fig. 8. It shows the interior of the fire proofed banking floor of the Commercial and Farmers' National Bank, the upper stories of which were destroyed. Fig. 25 is the interior of one of the rooms on the lower floor of the Merchants' National Bank Building. The exterior of this building is shown in Fig. 7. The effects of the terrible heat which it must have undergone are very ap-

this floor, as is shown by the violent buckling. The pipes running beside this column were of fairly large diameter. They were placed close to the steel, with the fire proofing immediately outside of them. The heat of the fire in raising the temperature of the entire mass had a greater effect upon the piping, which it caused to expand considerably. As there was no room between the column and the fire proofing to allow for this, the piping steadily bulged the terra cotta as it continued to expand. The loosening of the latter admitted the heat to the piping still more readily, and further rapid expansion ensued. Finally this became so great as to knock the fire proofing away from the column, leaving it exposed to the mercy of the fire. The warping of the piping is more clearly illustrated in Fig. 27, which illustrates another section of the same floor where evidently the action



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Fig. 18.—A rear view of the Continental Trust Building, showing the brick walls around the air shaft, which are badly cracked and in some places have scaled. This view also shows the nature of the buildings which surrounded this structure and the completeness of the work of the flames upon them.

parent. And on the same floor there is a banking room the interior of which is just as little harmed as the interior of the first floor of the Commercial and Farmers' National Bank Building.

A Warped Steel Column and the Lessons It Teaches.

One of the most interesting details to be observed throughout the entire ruins of the fire is the steel column illustrated in Fig. 26. This is on the seventh floor of the Calvert Building, and calls attention to two bad features of fire proofing which are commonly followed. One is the practice of having a portion of the column unprotected for the purpose of imbedding electric switchboards and similar devices, and the other is the practice of running the piping between floors between the steel column and the fire proofing. Both of these mistakes were made in connection with the covering of this column, and as a result the fire soon found its way to the column and produced the effect shown in the engraving. In the columns shown all of the terra cotta was evidently shattered some time before the fire had burned itself out on

of the heat upon the tubing was slower. It is suggested that this obstacle can be overcome by simply placing a double covering around the column, one fitting against the column direct, and the other surrounding the encased column, leaving room for the piping. The entire affair, it is suggested, should be filled in with concrete, thus leaving no air chamber to serve as a flue for carrying the heat and flame. These views also show the manner in which the under web of the terra cotta segmented tile broke away owing to their thinness. They also show the unprotected lower flanges of the I-beam floor girders due to the cracking of thin terra cotta covering.

Weak Arches.

The condition of the floors of the Equitable Building is shown in Fig. 28. As previously mentioned, this is accounted for by the poor construction of arch employed and the general weakness of design of the floor. In Fig. 29 details of the construction of this arch are given. It will be noted in the first place that the arches are of 8 feet span, which authorities now agree is about 3 feet too

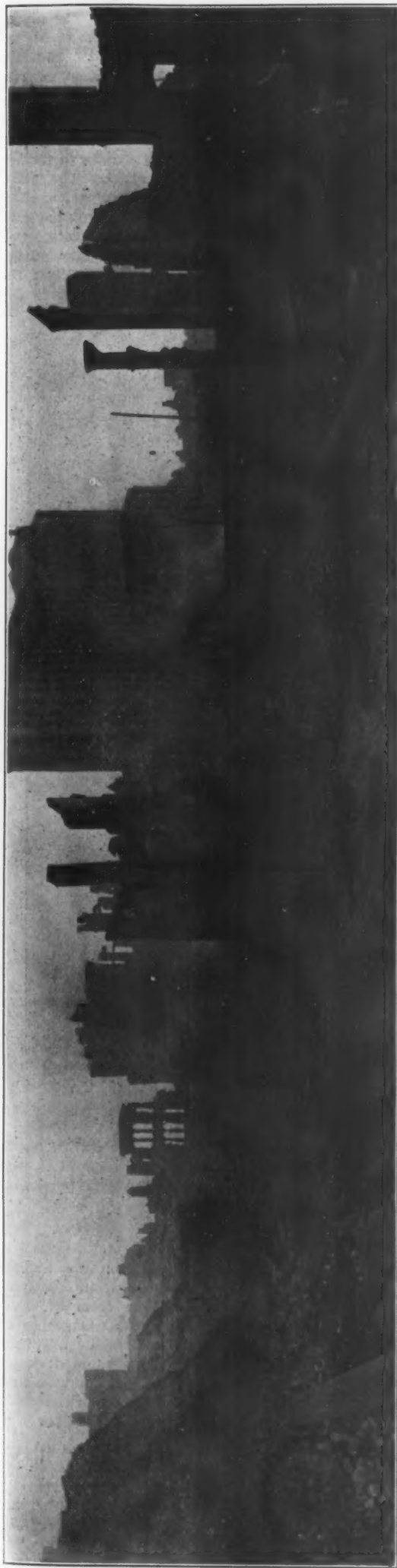


Fig. 19.—A panoramic view of the ruins immediately after the fire, looking north from Light and Lombard streets. Near the center of the picture the Maryland Trust and Continental Trust buildings tower high above the desolation all about them. Along the foreground will be noted the broken and bent iron columns, steel girders and structural work from the buildings which have been laid perfectly waste by the conflagration.

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Fig. 20.—Another panoramic view of the ruins, looking northwest along Frederick, Water and Gay streets. On the left is shown the United States Custom House, in course of erection. Here the fire showed its freakishness by cracking and spalling great granite blocks used in the construction of the Custom House and leaving in some cases unscathed and in others merely charred the wooden crating placed at the bases of the columns to protect them during the work of building.

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wide. The principal object of employing the wide arches was doubtless to save not only in weight of the arch, but also in the steel I beams. Some of the arches were but 6 feet 9 inches span, but in most cases the girders were placed 8 feet apart. Resting upon the upper flange of the I beams was a floor of 3-inch planking and upon this was laid a $\frac{7}{8}$ -inch sheathing. It is stated that the haunches of the arches were not filled in with concrete, leaving an air space underneath the planking. It is obvious that when the flooring burned from underneath a safe it would have quite a fall to the arch, and breaking through it would fall to the next floor, gathering momentum and crashing through floor after floor to the basement. This has been the fate of the floors of the Equitable Building, and they are now in so weak a con-

dition that such arches as have not fallen are in danger of doing so at any time.

pletely gutted. A portion of this building is shown in Fig. 8.

Fire Proof Roofing.

A high tribute is paid to fire proof roofing, in Fig. 32. The mass of twisted steel and broken machinery in the foreground represents what was one of the three buildings of the Pratt Street Power Station. In the background another of the three buildings is shown to be in perfect condition. The third is similarly intact. The three buildings were built alike, with but one exception. The first building had a nonfire proof roof. It was made of 2-inch planking covered with slate. It was completely consumed and the heat of the burning roof buckled the steel roof trusses, pulling the brick wall in upon the



Fig. 21.—A view from the exterior of the Continental Trust Building, looking into the first floor. Everything inflammable was completely consumed, even to the sleepers to which the wooden flooring was nailed, the grooves being shown in the concrete flooring in the engraving. The spalling of the stone trim will be seen to be considerable. The fire proofing here was good, however, and the floorings, partitions and steel frame of the building are in good condition.

dition that such arches as have not fallen are in danger of doing so at any time.

An Approved Design of Arch.

The construction of arch which has received the approval of experts who have investigated the results of the Baltimore disaster and the one which withstood the conflagration is shown in Fig. 30. It will be noted that the I beams are not only of larger dimensions but are placed closer together than they were in the Equitable Building. The form of tile employed in the successful arch is also of interest. It will be seen that it is deeper and contains a center web forming four hollow spaces. In this case the arch is not weakened as perceptibly when the lower web is broken off as when the form of tile shown in Fig. 29 is used.

Steel Vaults Incased in Brick.

The experiences of the concerns whose places of business were destroyed by the fire has been that steel vaults incased in brick have offered the best security for their valuables. One of these is shown in Fig. 31. It is in the building of the First National Bank, which was com-

pletely gutted. A portion of this building is shown in Fig. 8.

machinery and putting that portion of the station out of service. The other two buildings are now as good as ever, and from these the electric power for a large portion of the city is being produced.

The telephone line between London and Brussels is 244 miles long. The overhead portion on the English side is 97 miles long, and that on the Belgian side is 93 miles long. The submarine cable runs from St. Margaret's Bay to La Panne and has a total length of 54 miles. It is, therefore, the longest submarine telephone cable in operation. The cable is $4\frac{1}{4}$ inches in diameter and weighs 4.9 pounds per linear foot. It contains four conductors, giving two metallic circuits. Each conductor consists of seven strands, and the resistance per conductor does not exceed 6.4 ohms per mile.

It has been calculated that the amount of heat produced in the combustion of an ordinary envelope would be sufficient to carry a ton of merchandise a distance of $\frac{1}{2}$ mile if properly applied as in one of the latest economical cargo steamers.

Against the Eight-Hour Bill.

Commissioner Du Brul Points Out Fatal Defects

WASHINGTON, February 23, 1904.—The practical difficulties in the way of the enforcement of such a law as that contemplated by the so-called national eight-hour bill, now pending in Congress, were very graphically set forth by Ernest F. Du Brul, commissioner of the National Metal Trades' Association, in an elaborate argument delivered before the House Committee on Labor on the 18th inst. Several members of the National Association of Manufacturers also appeared against the measure, which they denounced as an unwarranted interference on the part of the Federal Government with the industries of the country.

Mr. Du Brul said that the National Metal Trades As-

sociation was an organization of manufacturers, embracing about 325 firms, employing approximately 60,000 men. In addition, from 500 to 800 manufacturers in various branches of the metal trades were affiliated with the organization. None of these firms opposed the pending bill merely because it would provide a short-hour system, whatever their views might be on that point. Their opposition was based upon the conviction, first, that Congress had no right to interfere with the liberty of contract on the part of any adult male individual; and, second, that the legislation proposed in the pending measure was wholly impracticable and industrially impossible of execution. The regulation by the States of child labor, the employment of women in factories, the sanitation of manufacturing plants, were all proper functions of the State governments, but neither the State nor the Federal Government should undertake to force a social and economic movement that has come gradually to its present development, and that will make progress hereafter in a natural and wholly satisfactory manner if left unham-

pered by arbitrary and ill-advised legislation. Referring to the demands upon Congress and the State legislatures to pass laws for the benefit of organized labor, Mr. Du Brul said:

"The business men who compose our organization feel that this measure seriously interferes with the right of the manufacturer to run his own business. We know that there is a great deal of strife and contention going on to-day, and perhaps more than ever before during the past few years, and nine out of ten of these controversies relate to the question as to whether the manufacturer shall manage his own business or whether it shall be managed for him by others who have nothing at stake in it. This strife will continue and will increase as long as hope of such legislation as this is held out by Congress, so that the workingmen are induced to believe they are in a sense the wards of the Government, to which



Fig. 22.—Another view of the first floor of the Continental Trust Building, showing the efficiency of the fire proofing. The chandeliers in the rear of the ceiling will be seen to be fused, while nearer the front of the picture is one on which not even the glass reflectors have been melted, and in front of this one it will be noted the entire fixture is gone. This is further testimony to the capriciousness of the fire. The partitions which have fallen in the rear contained sashes and considerable wood work.

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The Organization of Employers.

Referring to the widespread movement on the part of manufacturers and employers during the past year or two to combine against the aggressions of labor, Mr. Du Brul said that for many years a great deal has been heard of the organization of labor, but within the past year or two much has also been heard of other kinds of organization, such as that brought about in Cincinnati, where the Employers' Association has been formed, embracing approximately 3500 members, although only a few months old. Continuing, he said:

"We have independent organizations on the part of employers in all lines, including many who are not manufacturers, and this movement is taking shape throughout the country, chiefly to-day in smaller communities, but there can be no doubt that if the necessity demands they will spread to the larger cities. They are comprised of citizens of all sorts and are commonly called Citizens' Alliances. They include not only manufacturers, but merchants, doctors, lawyers and real estate men, and they also embrace ununionized or deunionized workmen who have felt the necessity of banding together for their own protection. There is a great change coming over public sentiment and in every one of these organizations, with many of which I come into personal contact, it is felt that legislation such as is contemplated in this bill is extremely dangerous."

Mr. Du Brul said he had read carefully all the hearings held before the House and Senate committees on similar bills in the past two years, but had failed to find

in which case the men working longer hours would be dissatisfied, or they would receive less wages and would be unwilling to continue work under such an arrangement. No employer in the country would attempt to enforce such a system, and no man of sense would deny that such an attempt would cause endless confusion and dissatisfaction, leading up to strikes and all other concomitant abuses. Mr. Du Brul quoted Messrs. Gompers and O'Connell to show that the purpose of the bill was to force the Government contractor to run his entire plant on an eight-hour basis. As to how the average manufacturer would regard a Government contract if the pending bill should become a law, he said:

"Now, what would be the result of the passage of this bill? All the available testimony shows that manufacturers would refuse to take Government work. And why? Because, in the first place, the Government work is only a small part of any manufacturer's output, ranging from 2 to 30 per cent., so far I have been able to



Fig. 23.—The corridor of the Continental Trust Building. This was completely finished in marble, the ceilings as well as the walls and floors. The disastrous effect upon the fire proofing of the cracking and falling of this marble is very apparent. In fastening the marble to the ceiling holes were broken into the terra cotta hollow tiles, which weakened them considerably under the conditions imposed by the fire and caused their lower surface to fall with the marble. The steel bars which also held the marble in place twisted considerably when left exposed to the fire.

any argument on the part of the advocates of the measures in favor of them except a general statement that a shorter working day was a good thing for the workingmen. This, he insisted, was a question of economics which would solve itself in the course of time and could not be determined by legislation. Some industries were running on comparatively short hours, and there could be no objection to their doing so, but if it was desirable that other industries should be put on the same basis they must come to it gradually and not as the result of drastic federal legislation.

Practical Effects of the Bill.

Referring to the practical operation of the bill, Mr. Du Brul said that the testimony all through, even on the part of the friends of the measure, demonstrated that it would be absolutely impossible for a Government contractor to run part of his plant on an eight-hour system and another part on a nine or ten hour system. If it should be attempted, either the eight-hour men would receive as much wages as they formerly did for nine or ten hours' work,

get figures on the subject. Certainly no manufacturer would sacrifice from 70 to 98 per cent. of his commercial business in favor of the 2 to 30 per cent. by an attempt to meet the provisions of this bill. If they did not give up their Government work they would be obliged to confine their entire efforts to it, for in running their plants on an eight-hour basis they would be cut out of competition with all their rivals operating on a nine or ten hour basis, because of the increased cost of production.

"I am aware that a few trades are now operated on an eight-hour basis, but they are surrounded by exceptional conditions. They are chiefly the buildings trades and those engaged in the manufacture of clothing, &c. In the building trades the capitalist who has a building constructed for him may find that the cost is excessive, but as it is not put on the market, he holds it, thinking that the property will increase in value, and when he finally sells it at less than it cost him he makes a profit on the land or pockets his loss. It is not a current commercial transaction in any case, and there can be no doubt that the shorter hours have greatly increased the



Fig. 24.—The interior of the first floor of the Commercial and Farmers' National Bank after the fire. Above this floor the building is completely ruined, as shown in Fig. 8. The banking floor was the only one which was fire proofed. It is absolutely uninjured.



Fig. 25.—A room on the first floor of the Merchants' National Bank Building. This shows the condition of the fire proofing in this building. The intense heat in this side of the building is attested by the twisted metal window frames on the left, and the clean manner in which the wooden strips were eaten out of the brick columns on the right. The opposite side of the building was untouched by the fire on the lower floors.

cost of construction and correspondingly restricted building operations. In the clothing trade the products are sold largely under a union label, and the hours of labor have been cut down under the pressure exerted by the fear a boycott. There are no large mechanical industries that are conducted to-day on an eight-hour system. The machine shops are operating on a basis of nine or ten hours, the blast furnaces on a 12-hour basis, and so on."

Increased Output Impossible.

As to the possibility of increasing the output per hour sufficiently to make up for the decrease in the length of

ard is reached and maintained. As different men have different ideas as to the grinding of tools, manufacturers not only have them all ground by the most expert tool grinders they can get, but they standardize the quality and brand of the steel of which they are made and thus obtain the best possible results. When the work comes to a lathe man he receives an instruction card, which requires him to put his belt on a certain cone, to chuck his vise in a certain way, to use a certain tool and to employ it in a certain manner. Each of these operations is carefully timed, and the result is that the utmost efficiency of which the machine is capable is secured, and



Fig. 26.—A steel column on the seventh floor in the Calvert Building, which has been buckled by the heat through the loss of its protecting covering. It was originally covered with terra cotta, as shown in the column immediately in the rear of it. There was an opening into the fire proofing into which an electric switchboard was set. The piping was also placed inside of the terra cotta fire proofing, as shown in Fig. 27, and the expansion of this under heat threw the fire proofing away from the column, exposing it directly to the fire.

the day, Mr. Du Brul said it was absolutely out of the question, because the productivity of labor depended largely upon the speed of the machinery employed, which was already operating at a maximum rate. Continuing, he said:

"Few persons who have had no experience in these matters can have any idea of the pains taken by the up-to-date manufacturer to increase and maintain the productivity of his machinery. In the case of a lathe, for example, the belt pull is carefully standardized and when the belt gets loose it is promptly pulled up and kept at a certain tension. No individual mechanic's judgment is taken on the matter, but a carefully determined stand-

ard is not at the expense of the strength of the workman, who is not actually engaged in hard labor, but merely in attention to the details of the operation. Under these circumstances, it is easy to see that it is not possible to increase the output per hour by reducing the number of hours."

In reply to an inquiry by Representative Gilbert as to whether relays of labor might not be employed on work of this class, Mr. Du Brul said that one difficulty in the way would be the divided responsibility that would result. The machinery industries of the country are trying to cut out night crews as much as possible, for their work is costly and unsatisfactory. Sometimes it was

impossible to avoid such work, but it was only done under great pressure. Mr. Du Brul also quoted a resolution of the Federation of Labor to the effect that it was a mistake to advocate increased output as an argument in favor of the eight-hour system, as such an increase "would take away half of the benefit of the system," which was intended to provide work for more men.

Workmen Do Not Want It.

As evidence that the average workman does not want to be restricted to eight hours, provided he can receive

ernment. Such articles frequently included machine tools and heavy machinery of all kinds, and if not taken by the Government must be disposed of commercially. It would be a very great hardship to compel such manufacturers to produce their goods on an eight-hour basis, for the costs would be absolutely prohibitory if they were obliged to sell their products in competition with goods made on a nine or ten hour basis. If Congress could impose such a system, he said, it might as well go further and fix the minimum wage to be paid, or restrict



Fig. 27.—View of a room on the seventh floor of the Calvert Building, showing the arrangement of piping directly inside of the single casing of terra cotta fire proofing. The bulging of the piping, due to expansion under heat, is clearly illustrated here, showing how the fire proofing is shattered from the column, rendering it useless so far as further protection is concerned. The practice of so placing the piping will be responsible for as much damage as has been done to steel columns in Baltimore's fire proofed buildings.

more pay for working longer, Mr. Du Brul cited an illustration of a manufacturer who was running his plant on a ten-hour basis, and who thought he would be able to secure better results if he changed his system to piece work. At the outset nine pieces of a certain kind constituted a day's work, and he told his men that when they had finished their task they could go home. They did not do so, however, but worked the full ten hours and turned out 17 pieces, nearly doubling their wages.

Assuming, for the sake of argument, that the Government had a right to restrict the hours of labor on work performed for it in private plants, Mr. Du Brul pointed out that a great hardship would be incurred by many manufacturers whose products are required to pass a certain inspection before they are accepted by the Gov-

the number of apprentices, or prohibit a handy man from doing a mechanic's work, or prevent a mechanic from running two machines, or impose the rest of the thousand and one restrictions supposed to be good for the laboring man.

In regard to the manner in which the bill would interfere with foundry practice, Mr. Du Brul said:

"Now, take the case of a foundry. The molding is done in the morning and the early part of the afternoon, and the iron is put into the cupola with the coke and begins to melt; but one day the cupola will run faster than another day, owing to atmospheric conditions or to other reasons not easily ascertained or described. The heat will be taken off one day from five minutes to half an hour later than another day, and hence the foundry

runs a little over time—5, 10, 20 or 30 minutes. It is not an 'extraordinary emergency,' for it occurs every few days, and it would not be covered by the exemptions of this bill; but there you would have a concrete situation, with your eight-hour day gone and from five minutes' to half an hour's work yet to be done. The foundry runs only one shift, and it would be utterly impossible to get another crew to do that 10 or 15 minutes' work. Now, I would like to ask this committee what that manufacturer should do, and I beg to remind them that that is a condition likely to exist on almost any day and in

Opportunities for "Graft."

One of the most telling points made by Mr. Du Brul was with reference to the opportunities that would be afforded the great army of inspectors to be maintained under such a bill for blackmail and "graft." In this connection he said:

"One of the most serious phases of this proposition is that of inspection. I am informed that there are between 5000 and 7000 Government contractors, with probably an even larger number of subcontractors. Now, must every shop doing Government work have an in-



Fig. 28.—Interior view of the Equitable Building, showing where floor arches have fallen. Details of construction are shown in Fig. 29. The damage incurred through the use of these arches has made this the most severely injured of the large office structures. The weakness of the arches caused the fall of the safes from every floor right through to the basement.

almost any plant. Suppose it happens in the foundry of a subcontractor, who is obliged to violate the law to save his cupola. It certainly is not the fault of the contractor, but nevertheless he is mulcted by the Government for something which he could not possibly control."

Mr. Du Brul also gave the illustration of a crane man who might be in the cage handling a heavy piece of work just as the eight-hour whistle blew. Even if working two shifts, the man to relieve him might be a few minutes late, and either the law would have to be violated or a serious accident might occur. It could not be called on "extraordinary emergency," because, as a matter of fact, it would be a very ordinary happening, liable to occur at any time.

spector constantly on the ground? The law certainly seems to provide for at least one in every plant. Are we to have a system of governmental espionage over all the establishments in this country that may attempt to do Government work? and, if so, what guarantee have we that some of these inspectors will not be 'grifters' and blackmailers? Think for a moment of the opportunity of such an inspector to exercise arbitrary power for the purpose of 'graft' and blackmail! Suppose through an inadvertence a plant employing 1000 men should run five minutes, or one minute, or even one second, over time. That would mean a fine of \$5000! Suppose the inspector should say to a certain official that he would 'settle for a couple of hundred dollars.' That is an op-

portunity that would not be used? Have we seen anything like it in recent years? Have we seen any evidence of corruption in the case of Parks and others of New York? The giver is as much to be condemned, I say, as the receiver of the bribe; but is Congress to create a flood of such opportunities and place such temptations in the way of Government inspectors and others? The Governments of Turkey and Russia are renowned for the corruption in their internal affairs, and chiefly because arbitrary power is delegated to underpaid officials in such a manner that the temptation to bribery cannot be re-

telegraph and telephone lines, so that the measure was a direct discrimination against certain industries only. Even the exemptions, however, were so vaguely drawn that no one would be justified in assuming that he could construe them as the courts would finally do. Would it be held that a dredge was an "open market" commodity? and if a dredge, why not a battle ship? Until this important question was settled, the Government would get no dredges for its river and harbor work or for the Panama Canal. With regard to that great project, Mr. Du Brul said that if this bill were enacted there would

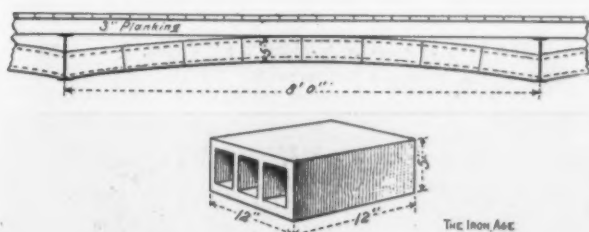


Fig. 29.—Type of arch and hollow tile used in the flooring of the Equitable Building. It is reported that the haunches were left hollow and not filled in with concrete. The heavy wooden flooring was completely consumed.

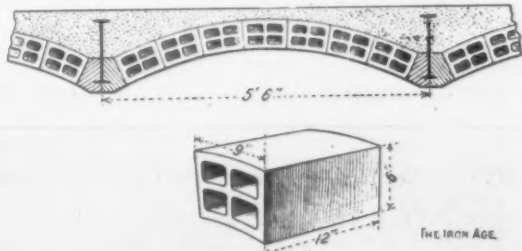


Fig. 30.—Type and approximate dimensions of segmental tile floor arch which stood the test of the fire and is generally recommended by builders who have investigated conditions at Baltimore.



Copyright, 1904, by J. O. Hemment.

Fig. 31.—Interior of the First National Bank Building, showing excellent preservation of the steel vault protected by brick and complete consumption of all inflammable material.

sisted. Do you want to create such conditions in the United States? I have said very little of the expense of maintaining this army of inspectors, but it goes without saying that it would greatly increase the cost to the Government of all this work. I think the taxpayers of the country, even though they do pay their taxes indirectly, ought to have a right to think about these things, and to say that if we are to have something that is good for one class of the people let us have it for all; let us have it for the farmer and the merchant."

Taking up the subject of the exemptions provided in the bill, Mr. Du Brul pointed out that powerful influences like the railroads, for example, had secured the exclusion from the bill of all transportation lines and

be no army of Government contractors rushing to Washington with propositions for furnishing hoisting engines and dredges, boats and locomotives, and it would have to be determined whether such things could be purchased in the open market. Would the Supreme Court decide the question with regard to these articles in a single decision, or would a separate case have to be made for each one?

Government Plants the Alternative.

In reply to questions by members of the committee as to whether manufacturers would not continue to take Government contracts but at increased prices, Mr. Du Brul said it was more probable that they would refuse to take them at all. Certain manufacturers peculiarly cir-

cumstances might take some contracts, but the result would be that the Government would have to pay a very large increase in cost, and the contracts would be monopolized by a few, so that the tendency would be toward decreased quality and higher prices. Ultimately the Government would probably be forced in many cases to build plants of its own in order to secure work which private contractors would not undertake.

Certain members of the committee seemed to think it doubtful that the Government would build plants of its own, whereupon Mr. Du Brul called attention to the fact that Congress had already authorized the construction of the cruiser "Connecticut" in the Brooklyn Navy Yard, in competition with the "Louisiana," now being built by the Newport News Shipbuilding & Dry Dock Company. Reports which he had received indicated to

method is to use three transformers, the primaries being either star or delta connected, and the secondaries star connected. A delta connection on the low tension side, as well as on the high tension side, has, however, the advantage that the breakdown of one transformer does not render the plant useless, as the two remaining transformers take the load of the missing one.

The Powhatan Coal & Coke Company, the subsidiary corporation by means of whom the Buffalo & Susquehanna Iron Company of Buffalo control their coal properties in Pennsylvania, have taken over from the Buffalo & Susquehanna Railroad interests, in addition to the coal lands at Sykesville, Pa., which were contracted for some months ago, the large property at Tyler, Pa. The company intend to erect immediately 400 coke ovens at Sykes-



Fig. 32.—The wrecked building of the Pratt Street Electric Power Station. This building contained a wood and slate roof, but otherwise was built similar to the two adjoining buildings, which have fire proof roofs and were left in good condition, all of the machinery being saved and in operation shortly after the fire.

him that the cost of the "Connecticut" would be far in excess of the "Louisiana." The pending Naval Appropriation bill, he added, authorized the Secretary of the Navy to build in Government yards all the war ships provided for it, in his opinion, there was evidence of a combination among private shipyards to compel the Government to pay excessive prices; further, the same bill appropriated \$4,000,000 for the construction of an armor plate plant to be built in the event that armor could not be bought at reasonable prices from private contractors.

The House Committee will hold another meeting on the 25th inst., at which several members of the National Metal Trades Association and of the National Association of Manufacturers will present arguments against the bill.

W. L. C.

Rotary converters operated six-phase will give from 35 to 45 per cent. greater output than when operated three-phase, according to *American Electrician*. Hence economy dictates three-phase transmission, with transformation to six-phase at the converters. The simplest

ville and 200 at Tyler. It is expected that the furnaces at Buffalo will go into blast in April. To take the place of the Tyler mines the railroad company, through the Buffalo & Susquehanna Coal & Coke Company, are opening another shaft on their property at Du Bois, Pa. This will enable them to maintain and increase their coal shipments. After thorough investigation, extending over several months, the company have bought additional coal lands underlaid with upward of 40,000,000 tons of coal, in Indiana and Armstrong counties, Pa., in the vicinity of Plumville. Including this purchase, the Buffalo & Susquehanna Railroad now own over 110,000,000 tons of coal and control the transportation of almost half as much more. The extension of the railroad to the coal properties is being constructed with a view to economical operation.

The Whitehead Machinery Company of Davenport, Iowa, have opened an office in Room 517, Park Building, Pittsburgh, in charge of H. G. Adams, formerly purchasing agent for Wickes Brothers of Pittsburgh. This office will handle business of the Whitehead Machinery Company for the Eastern territory.

The Use of High Percentages of Mesaba Ores in Coke Blast Furnace Practice.*

BY W. A. BARROWS, JR., SHARPSVILLE, PENN.

Mesaba ores differ from all other soft Hematite ores of the Lake Superior region in having but little or no binder. When exposed to heat they are changed to a sandy powder instead of baking into lumpy masses, as the Gogebic, Menominee or Marquette fine ores do. The finer particles have little or no tendency to adhere together. In the furnace they are carried by ascending gas currents into the down comers and gas mains, forming fine dust of a fine, gritty nature. By finer particles is meant ore fine enough to pass through a sieve with 80 meshes to the linear inch. Ore coarser than this is not likely to be carried over except in case of a slip or explosion in the furnace. The higher the percentage of fine particles in an ore from this range, therefore, the greater amount of dust likely to result from its use. This does not hold good in case of fine ores from the other ranges. Ores from the older ranges have been in successful use for years, carrying as high as 20 per cent. of material fine enough to pass through a 100 mesh-sieve, with no records of their causing any trouble in furnace practice by dust, slips or explosions, so common after the introduction of Mesaba ores. We consider Mesaba ores containing less than 12 per cent. material passing through an 80-mesh sieve of good structure, ores from 12 to 18 per cent. of fine as of fair structure, and over 18 per cent. as of poor structure. It was at first supposed that these fine particles were all carried over when the charge was lowered into the furnace or during a slip, but the presence of partly reduced oxides of iron in fine dust, even when no slip has occurred, proves that a part at least must have been low enough in the furnace to be acted on by the reducing gases, and subsequently be carried up and over with the escaping gas currents.

Notwithstanding the difficulties experienced in working Mesaba ores, their use has been favored because they can be so cheaply mined, and because immense deposits of ore of good chemical composition exist on this range. The rapid depletion of old range reserves, particularly of ores of Bessemer grade, renders it absolutely necessary from an economic standpoint that the maximum percentage consistent with safe furnace operation be taken from this range, and every energy on the part of the furnace superintendent be devoted to adapting furnace practice to this end. In fact, his value to his employer in some districts is dependent on his ability to use this ore liberally in his mixture. Fortunately, not all the ores from this range are of poor structure; some, in fact, contain little or no objectionable material. Most of the ore mined from the deposits lying near the surface, including some of the largest mines on the range and those most cheaply operated, do contain considerable very fine ore. In a greater measure their cheapness recommends them and forces their use. A number of earlier properties opened up on the Mesaba furnished ore of very poor physical structure, and much damage to furnace plants followed its use. So serious had this become about eight years ago that ores from this range were all considered bad, with the single qualification that some were worse than others. Recent operations have demonstrated the unfairness of this conclusion, and furnace men generally have come to recognize the fact that a great many ores from the Mesaba range are of good physical structure and, with modified practice, work satisfactorily in the furnace, giving little trouble from dust and causing no slips or explosions. Operations at the Shenango furnaces over a period of more than two years demonstrated conclusively that mixtures made up of good structure Mesaba ores and those of the finer grades work as satisfactorily as those made up of old range ores and the finer Mesabas in same proportions.

The old range ores are not necessary to good practice. During these two years our ore mixture has consisted entirely of Mesaba and silicious ore. On account of the higher freight charges paid on Mesaba ores it does not

pay to bring silicious ore from this range. During the two years we have made and sold over 300,000 tons of standard bessemer and basic iron, and have had no serious slips at either of our three furnaces. Our percentage of Mesaba ore consumed last year (1903) was 93.73 per cent., and silicious ore 6.27 per cent. The yield of pig was 53.25 per cent., which is practically the theoretical iron contents of our ore mixture, in the condition in which it was filled. We lost by dust and in other ways the usual furnace gain of three to four per cent. This yield is based on iron sold and paid for. Over 75 per cent. of the pig iron was chill cast.

This condition of furnace practice was arrived at after the usual troubles with slips, explosions, &c., that have followed the introduction of Mesaba ores. Changes in the manner of filling and lowering the stock into the furnace, and modified lines of the top part of the furnace, have done away with these troubles, and, aside from the dust problem, when the mixture contains too much fine ore, our operations are as safe and satisfactory on all Mesaba as when running on old range ores.

Just prior to January 1, 1901, our No. 1 furnace was operating on 50 per cent. Mesaba and 50 per cent. old range ore. The Mesaba was of good structure—in fact, I consider it the very best shipped from that range. The work done was very satisfactory; slips and explosions were of almost daily occurrence, and fully one-third of the output was unsalable.

The Method of Filling.

On taking charge of the plant at this time I found that a change in the manner of filling and lowering the stock into the furnace stopped this entirely, and since that date we have had no serious slips or explosions at either of our three furnaces, except when for experiment we changed the manner of filling. The following manner of filling has given best results. Charge consists of 8 barrows of ore, 8 barrows of coke, 3 barrows of limestone and 1 barrow of dolomite. The coke barrows at No. 1 and No. 2 furnaces hold 600 tons; at No. 3 furnace, 800 tons each. The ore charge at No. 3 furnace is approximately twice the weight of coke charge; at Nos. 1 and 2 furnaces it runs from 5 to 7 per cent. less. Coke is filled from bins by bulk, not weighed. We dump the charge at four points around the hopper, and have the silicious ore barrow or, if none of this ore is needed, the barrow containing the coarsest Mesaba, dumped on the bell first. We move this barrow around the furnace from left to right, one pocket at each charge. When the first four barrows of ore are dumped on to the hopper, two barrows of lime are put on top of two barrows of the ores, then four barrows of coke, then four more of ore, then one of lime and one of dolomite, into the pockets missed by the two lime barrows in the first half, then four of coke on top of all. This charge is lowered altogether. The purpose in lowering the split charge at one time is to prevent the fine ore from sticking to the side of the furnace, as it is apt to do when lowered separately. The tendency when the bell is lowered is for all the material thereon to go to the walls of the furnace. The coarser parts rebound to the center, the finer parts, particularly fine wet ore, remaining where it is first placed. By sandwiching the coke between ore layers, a portion of the coarser material is held next the walls, and tends to keep them clean and assist the charge in settling regularly. We aim also to place our coarsest ore on the bell in the first layer. The purpose in moving our silicious or coarse ore barrow one pocket each charge is to destroy the continuity of the gas currents through the fine ore, to reduce the pressure incident thereto and prevent in a measure the dust being carried over.

F. L. Grammar, in his paper read before the February, 1903, meeting of the American Institute of Mining Engineers, describes the condition existing in furnaces where gas is forcing its way through layers of fine, sandy ore, comparing it to the bottom of a spring where sand is kept bubbling up by the water pressure below. This, in my opinion, is taking place at a distance much lower in the furnace than is generally supposed. We may seem to be laying undue stress on matters of filling and top distribution, but in the writer's opinion, when the charge is placed in the furnace correctly, the Mesaba proposition is solved.

* A paper read before the Atlantic City meeting of the American Institute of Mining Engineers.

and the same results can confidently be expected as with other ores.

Furnace Lines.

We notice no difference in working between Mesabas and old range ores, when changes are made in the shape of lower part of the furnace, size of tuyers, hearth, &c. The changes proving beneficial in one case prove so in the other. The difficulties introduced by mechanical top filling devices are many, and hard to solve. I know of no top rigging working satisfactorily on high percentages of Mesaba ores. A most serious objection is the necessity of conforming to one style of filling, which allows no opportunity for experimenting to determine the method best suited to furnace lines and material used. Up to the present time the hand filled furnaces have given better results in quantity and quality of output, fuel consumption and uniformity of working, comparison being made between furnaces of same size. The successful top-filling device must be elastic enough to admit of changes in filling and lowering the charge.

Our furnaces are not modern in any sense of the word, are all hand filled and of the following dimensions:

	No. 1. Feet. Inches.	No. 2. Feet. Inches.	No. 3. Feet. Inches.
Hearth diameter.....	10	10 6	10 6
Bosh diameter.....	15	15 6	17
Batter of bosh walls to foot	3.25	5	3.7
Batter of stock line to foot	0.9	0.9	0.9
Top diameter.....	10	10	11
Bell	7	7	8
Height	60	60	75

No. 3 furnace has not been operated on these lines, but is now ready to blow in. It formerly had a 13-foot top and 9-foot bell, and made 1.50 to 2 per cent. more dust than Nos. 1 and 2 furnaces on same mixture. The dust which at Nos. 1 and 2 furnaces analyzed about 40 per cent. iron, ran as high as 54 per cent. iron at No. 3. This dust was again filled into furnace, not as part of the regular burden, but in about the quantity as made, so as to preserve uniform conditions. Contrary to the general claim, we notice no bad effects from its use. It is filled very wet and not placed on the bell unless the furnace is in shape to have the charge promptly lowered. Dust below 50 per cent. we run into the cinder pit direct from the dust catcher. At our Nos. 1 and 2 furnaces we have iron pipe stoves, and get about 900 degrees of heat; at No. 3 furnace we have four four-pass Cowper brick stoves built about 1880, with which we can get, when they are fairly clean, from 1000 to 1050 degrees. The flues and checkers are small and need frequent cleaning to prevent back pressure in engines. We expect better results from our No. 3 furnace on present lines, with narrower top, and hope to keep our dust percentage as low as at Nos. 1 and 2 furnaces. The blast pressure at the two small furnaces averages about 5 pounds at tuyers; at the larger furnace, about 10 pounds at tuyers. The advantage of the narrow top, with more rapidly widening walls from the stock line to the bosh, was noted by Mr. Laudig and Mr. Bachman at the Buffalo Furnace Company, and in a paper read before the American Institute of Mining Engineers several years ago. This paper, in the writer's opinion, furnished the first evidence that furnaces, as then constructed, with wide tops, were not suited to working Mesaba ores. Their experiments showed that where Mesaba ores were heated in presence of reducing furnace gases, they expanded in bulk rapidly; this, too, before the charge had time to be reduced in bulk by the consumption of the coke.

Slips and Explosions.

This expansion caused the furnace to stick, from stock wedging in the top of the furnace, and explained the cause of top slips, then very frequent, when fine ores were used. Furnacemen are not agreed as to the cause of the heavy slips and explosions, formerly so frequent when using fine ores, but fortunately of less frequent occurrence of late years. The writer inclines to the belief that in cases of heavy explosions, where the stock is thrown out of the furnace, the trouble starts from a slip in the furnace which grinds the coke to fine powder. The latter coming into intimate contact with oxygen in the ore in a heated

atmosphere, results in a dust explosion. I do not approve of the closed furnace tops, but think it advisable to provide a liberal explosion door area at the top of the furnace. Our experience indicates that one or two large doors are more effective than a number of small ones with same area. Neither do I think the theory held by the advocates of a closed top that holding back the force of the explosion by confining its escape to the usual avenues of gas travel lessens the bad effects, although it distributes it over a longer time. It is, in my opinion, of no advantage to transfer the dust and material carried upward and usually thrown out the doors to the gas mains, dust catchers and stoves. The closed top certainly does not prevent slips and explosions, as those in charge of plants where the closed top is in use can testify.

Our experience in handling furnaces with mixtures containing large proportions of Mesaba ores has indicated the following:

First. Care in selection of the ore to get the coarsest ore obtainable.

Second. Adjusting the furnace top and the lines to suit the ore mixture.

Third. Care in filling, placing the stock on the bell and lowering the stock into the furnace.

Fourth. The arrangement of ample escape for the explosions and the bolting of the hopper at least 15 feet down in the brick work at the top.

Fifth. Avoid having blast off as much as possible; long stops are particularly liable to cause slips.

Sixth. Necessity for increased amount of slag. Our best results were obtained with 1300 to 1350 pounds per ton of pig, and advantage was gained by using dolomite as a part of flux. This gives good fluid slag even when the analysis shows the slag to be quite basic, and it keeps the hearth and lower bosh walls clean.

Seventh. Keep the furnace working hot and gray; fine dust invariably increases when the furnace works cold and gas thins up.

Eighth. Sufficient engine, stove and boiler capacity to enable the furnaceman to "run" the furnace and not have furnace "run" him.

The Youngstown Bolt Company.—The Youngstown Bolt Company of Youngstown, Ohio, have been incorporated with a capital of \$650,000, of which \$250,000 is preferred and \$400,000 common stock. Among the incorporators are: C. D. Hine, Warner Arms and A. E. Adams. The new concern will take over the property and business of the Youngstown Mfg. Company, manufacturers of bolts, nuts and rivets. A rolling mill is embraced in the plant, on which it was intended to roll iron and steel bars and shapes, but this mill has never been operated. Now that the concern have been reorganized it is probable this mill will be started.

J. Ogden Armour presented to the Armour Institute of Technology of Chicago, founded by Philip Armour, his father, a piece of land adjoining its present property, embracing all the property between Armour avenue and Dearborn street, and extending 385 feet north of Thirty-third street. The buildings now covering this ground will be torn down and the space converted into an athletic field, gymnasium site, etc. Other buildings will also be erected on this piece of ground. The present value of the land donated is about \$250,000. This gift will add greatly to the attractiveness of the neighborhood and give the students an athletic field, which they have long wanted, and which will permit them to enter more fully into athletic contests with other schools.

The coal handling machinery installed at the Lincoln Wharf Power Station of the Boston Elevated Railroad Company, recently lowered the world's record for rapid unloading. The coal was raised 90 feet above tidewater and delivered to the storage pockets at the rate of 320 tons per hour. The installation follows in general design the standard Hunt steeple tower rig, the moving gear and coal cracker being electrically driven, and the hoisting engine direct connected. The overhang of the folding boom is 40 feet, and the capacity of the shovel is 2 tons.

The Timmis Lithotype.

A New Piece of Machinery for the Rapid Composing of Printed Matter.

Those in attendance at the meeting of the American Newspaper Publishers' Association, held Tuesday, Wednesday and Thursday of last week at the Waldorf-Astoria Hotel, New York City, had an opportunity of seeing in operation a new invention, known as the lithotype, that is designed to do away with type casting and stereotyping. As might be expected, it is a radical departure from existing forms of type composing machines, for it uses raised type only in the making of an original. Beyond this the process is strictly lithographic. It has long been known that pictorial and color work generally was not the limit of the usefulness of lithography, and that type letters of any form can be quite as easily reproduced by the same method. As long as stone was used as the only printing medium there was no advantage in the process when the context of the matter to be reproduced was principally of type form. The importance of the discovery a few years ago that aluminum was the equal of stone for lithographic purposes can hardly be

principles of lithographing, that it depends on the non-affinity of water and grease. Consequently, if a design be made on stone or aluminum with an ink or crayon having a greasy or soapy body and the surface be dampened with water, the water will adhere only to those parts which have not been marked upon. In other words, the water will not stick to the design, and after the plate is wet the ink roller will deposit ink only where there is no water. Between each impression of the plate on paper the moistening and inking are repeated. It is a fortunate truth that the plate does not deteriorate, the last impression being quite as good as the first and the number indefinite, whereas in type printing 40,000 is practically the maximum of satisfactory impressions that can be taken without renewing the type surface.

The recorder, shown in Fig. 1, has three parts, the first at the left hand being the keyboard, the right hand the perforator proper and the part between the two the justifier. The keyboard includes about 100 keys for letters and characters and a space bar. Each of the keys is essentially a switch, and upon being depressed causes projecting pins to dip into mercury cups and close an electric circuit through certain magnets disposed radially in a group in the perforator. The armature of



Fig. 1.—The Recorder, Including Keyboard, Justifier and Perforator.

overestimated. Not only is stone inconvenient to use on account of its weight and cumbersomeness, but it is adapted only to use on flat bed presses. Aluminum, on the other hand, being light and flexible, can be readily curved about the drum of a modified rotary web perfecting press, rendering available the advantage of greater speed present in this improved form of press. To John Mullaly, president of the United States Aluminum Printing Plate Company, is due the credit for first recognizing the possibilities of aluminum in the lithographic art, and to Walter S. Timmis this more recent invention, which extends the field beyond the merely pictorial by providing means for composing reading matter for the original transfer with sufficient rapidity to make lithographic printing commercially practicable.

Beginning with the principle that a key operated mechanism somewhat in the nature of a typewriter board is most desirable for composing, the inventor designed the machine shown in Fig. 1, which for convenience will hereafter be spoken of as the recorder or perforator. This represents half the apparatus, and produces as its completed work a strip of perforated manila paper $2\frac{1}{8}$ inches wide, having somewhat the appearance in miniature of the records used in automatic pianos, as shown in Fig. 3. When run in reverse order through the mechanism shown in Fig. 2, which may be called the reproducer or printer, this is translated into the form of book type on a sheet of specially prepared transfer paper. The further treatment for transferring the paper to the aluminum plate is not a part of the invention, and is well enough known to need no detailed description. Suffice it to say, for the benefit of those unacquainted with the

each of the magnets operates a punch, and for each key there is a different combination of punches distinguishing it from every other. Simultaneously with the touching of a key one of the several pawls in the justifier moves a ratchet wheel, the particular pawl operated having a travel proportional to the width of the face of the letter recorded. Similarly, for the space bar a certain combination of perforations is made in the paper and a definite movement is given to the ratchet wheel. The space normally allowed between each word is a nine-unit space, or about the equivalent of one and one-half ems. This is in excess of the amount ordinarily required; consequently, to bring the line out evenly without breaking off in the middle of a syllable a few more letters may be inserted by reducing the amount of space between the words. This is the function of the justifier, and is accomplished automatically. The ratchet wheel being set for a certain length of line revolves continuously with the recording of each letter and space until any further movement would exceed the predetermined length. At this point the swinging arm of the justifier moves from its initial position at the extreme left a certain amount as each additional key is depressed, and any time thereafter the line may be closed. The swinging arm is in reality a switch, and moves over two series of contacts, one representing units of space and the other tenths of units. Its movement has the effect of automatically subtracting the width of each additional character from the total spacing available, the remainder being divided among the number of spaces which occur in that line. As soon as the arm begins to move the operator closes the line with the next completed syllable or word by touching a line key,

which perforates in the paper a combination of holes corresponding to the proper value of each space between the words and determined by the position of the arm at that instant.

The completed strip, or record, as taken from the perforator, is introduced into the reproducer and passes between feed rolls, which move it one space forward with the printing of each character. Just in front of the rolls are 20 small vertical contact rods, which are raised while the paper is moved and descend when it is at rest. Each is provided with a coiled spring, so that it may give if it encounters the paper in its descent. Wherever there are perforations the rods pass through and make electrical contact in mercury cups beneath the paper. It may be seen, then, that the paper merely acts as an insulator to prevent the closing of all but the desired circuits. The 20 contacts control an equal number of magnets in the base of the frame, two being used for each character, which operate stops to limit the movement of the type cylinder in a manner which will be described later.

tion to engage the lugs on the rock shaft, and may be projected by ten of the magnets previously referred to, while the other ten control similar stops, which limit the longitudinal movement of the drum by progressive tenths of its length. When the drum has encountered the two stops corresponding to a particular character, the pin is inserted in the diametrically opposite hole on the back of the drum to rigidly retain the alignment while the paper is being pressed against the type.

The inking mechanism is a neat, compact contrivance which inks a single type as it comes into printing position. A lithographic ink is used and is retained in a chamber into which a small roll dips. This inks a second roll, while a third carried on an oscillating arm passes against the second roll and across a flat surface before coming in contact with the type. In this way the ink is distributed evenly in a thin layer on the movable ink roller. After the ink roller has returned to its upper position a lever presses the paper against the type and a small hammer taps it lightly on the back, insuring a perfect impression.

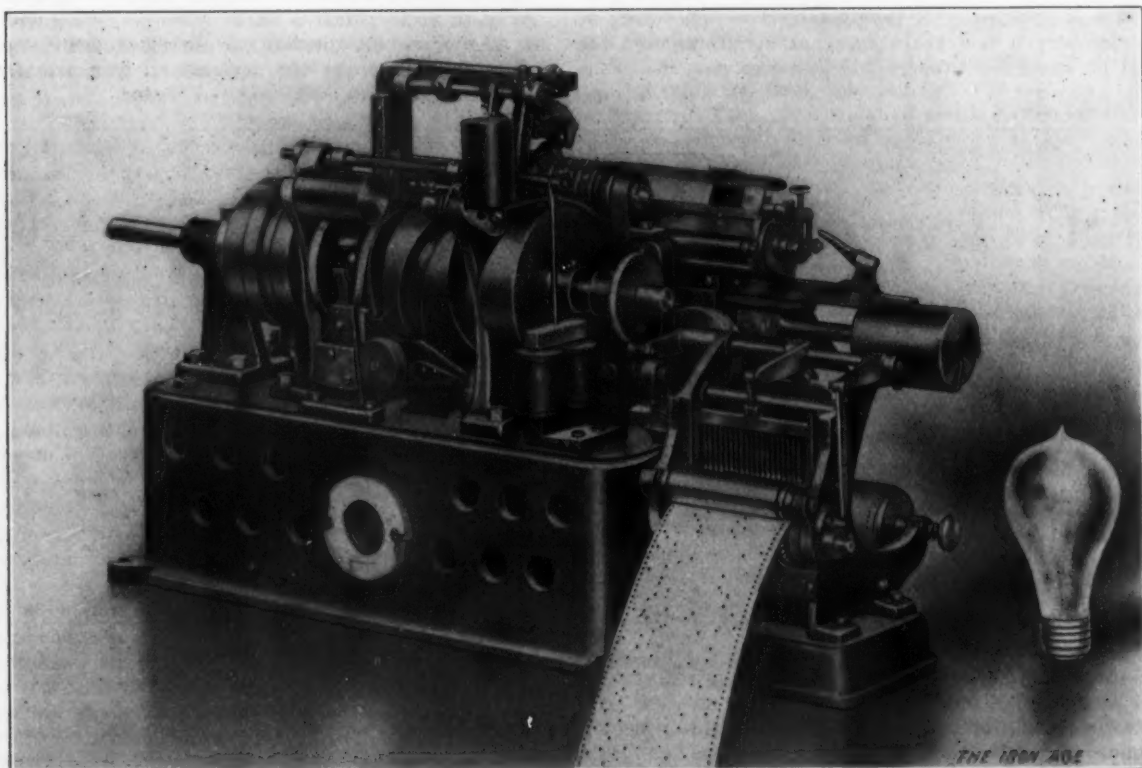


Fig. 2.—The Reproducer, Rear View, Showing the Cams for the Various Movements.

All of the motions of the machine are obtained from cams mounted on a main shaft, which is driven by a small electric motor. In this instance a Crocker-Wheeler $\frac{1}{4}$ horse-power motor is used, although $\frac{1}{8}$ horse-power is all that is necessary. The printing element is shown in Fig. 4, and consists of a cylindrical drum, one-half of the circumference of which is occupied by type, while the other half contains holes, one diametrically opposite each letter. As there are 100 characters, there are 100 holes, and both are arranged in ten axial rows of ten each; consequently, any one may be placed in printing position by a longitudinal movement of certain extent and a partial rotation. To secure these motions the drum is slidably mounted on a rock shaft, driven by an eccentric cam, and the sliding of the sleeve is effected by a cylindrical cam. In both cases the followers are spring actuated, so that, being yieldingly retained against the cams, they may be stopped at any point of their travel. Between each impression the drum is restored positively to an initial position; then, as the cams retract, the drum will simultaneously make a half revolution and slide its length unless it encounters stops. On the rock shaft are ten projecting lugs, arranged spirally, so that stopping any one would allow the drum to rotate one-twentieth of a revolution more than would its neighbor to the right. Ten stops are arranged in a line on the frame in a posi-

The paper is then withdrawn before the drum makes a movement for the next letter.

The justifying action occurs in the travel of the carriage holding the transfer paper. Inasmuch as the space determining perforations were first introduced, those contacts were made, with the carriage at the start of a line, that cause each succeeding space to have the proper value. In this part of the mechanism there is a part known as the accumulator. The spaces are not absolutely equal and can be apportioned only in even units. For example: If the proper space between words were four and four-tenths units, the carriage would move but four units, and the four-tenths would be stored in the accumulator. The next space would also be four units long and the accumulator would now have eight-tenths in reserve, but the third space would be five units long, with two units to spare, which again goes into the accumulator. And so the operation continues, the fractions being retained in the accumulator until they amount to an entire unit, which is applied to the regular number of units per space.

At the end of each line the platen is revolved a line space and the carriage is returned. To make the latter movement quick and positive without damaging shock in stopping, a plunger on the carriage enters a cylinder in which an air cushion is produced to check the movement,

while another plunger enters a solenoid, which pulls the carriage positively to a full stop. The two opposing forces combine to make the movement a sure and smooth one, whereas if the air cushion were used alone the stop would be jerky and slow.

The machine is not without means of safeguarding it against injury from any imperfect action. The drive of the main shaft is transmitted through a magnetic clutch, which is disengaged not only during the interval of returning the carriage for a new line, but also if by any chance the carriage should fail to return and tend to exceed the proper length of line. In such an event a lug

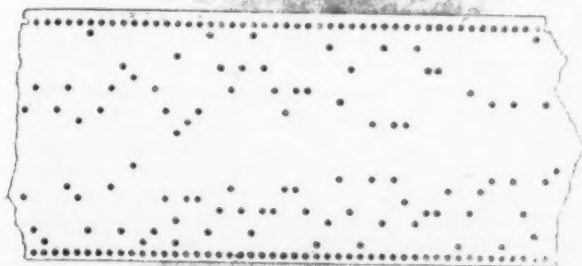


Fig. 3.—Fac-simile of a Piece of Record Tape.

on the carriage frame trips a latch opening the clutch mechanically by means of a strong spring, when it becomes a brake to stop instantly all movements. At the same time a switch is opened which breaks the circuit through the various magnets. The motor is allowed to run idly until the difficulty has been adjusted, when the closing of the magnet switch also retracts the brake and allows the clutch to resume its normal action.

One can scarcely appreciate the rapidity of all the operations, which seem at first glance so complicated. As

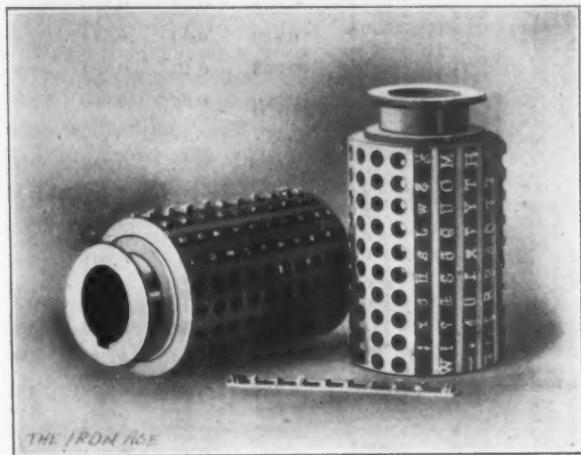


Fig. 4.—Two Type Sleeves and a Line of the Detachable Type.

a matter of fact, the reproducer has been operated at the rate of 10,000 ems per hour—about twice the speed at which the average operator can manipulate the keyboard of the recorder, and the latter is capable of about the same speed as would be obtained on an ordinary typewriter. As to the size of the machines, a fair idea is obtained by comparison with the ordinary 16 candle-power incandescent lamps shown in the illustration of each part. Being small, the machines are portable, and may be set up wherever a source of direct current is to be had by screwing attachment plugs at the ends of flexible extensions from each into lamp sockets.

One of the advantages of the lithotype is the ease with which corrections may be inserted on the original by pasting the correction over the mistake, the proof being read before the impression is made on the aluminum. Most

important, however, is the fact that it avoids the use of type and the heavy stereotype plates that are used in newspaper work. This would not signify that its field in book making is not equally as great, for the small space occupied by the aluminum plates makes it possible to store the originals for a complete book in a remarkably compact space. As an alternative the rolls of record tape may be retained, and these, too, for an entire book, would occupy but little space. Still another attractive feature is that from the same records the pages may be printed in various styles of type by the simple substitution of a type sleeve of different font. If it should be desirable the recorder and reproducer may be placed in different rooms or even many miles apart, and the records may be transported at an expense which would be insignificant compared to that for shipping ordinary type plates.

Employees May Operate Idle Mills.—Some of the employees of the Atlantic Works of the Republic Iron & Steel Company, at New Castle, Pa., which have been idle for some months, have formulated a plan to operate the works on a co-operative basis. The plans suggested by the men have been presented to officials of the Republic Iron & Steel Company, and an answer is expected within a short time. The men seek to obtain a lease of the works for which they would pay from the profits derived 6 per cent. interest on \$50,000, an estimate of the value of the plant made by them, together with the discounts and taxes. They desire a lease for one year, with a five-year or ten-year option. It is proposed to organize a co-operative company among the employees, who are to allow a set portion of their wages to remain in their treasury, which discount, they figured, would be more than offset in dividends. To carry them over the first quarter year they suggest that the Republic Company advance sufficient at interest, holding the output as security. The plant consists of 31 puddle furnaces, a two-high set of muck rolls, two skelp mills, one guide mill. It is proposed to start with about 25 furnaces operating single turn, taking up double turn and the remaining mills as soon as business can be obtained. The plant was recently improved, the puddle furnaces having been practically rebuilt.

It is confidently expected that the New England Brick Company, who recently went into a receiver's hands, will be reorganized on a more substantial financial basis and will continue business. This is the combination of New England and New York concerns manufacturing brick, 37 plants in all, which were brought together in 1900. The company have \$763,000 in bonds outstanding, \$1,738,800 preferred stock and \$1,067,500 common stock. Committees of the stockholders, bondholders and creditors have been appointed to co-operate with the receiver. The quick assets of the company are claimed to be more than \$156,000 above the liabilities. It is hoped that \$400,000 cash will be put into the business to give the necessary working capital, the trouble in the past being that the working capital was much too small.

The famous "Lincoln" car, which has been in the possession of the Union Pacific Railroad for 37 years, was recently sold to persons who will exhibit it at the St. Louis Exposition. For many years the car has stood on a siding in the Union Pacific yards at Omaha, without attracting more than passing attention. It was a part of the railroad exhibit at the Chicago and the Omaha expositions. The car was built at the military shops at Alexandria, Va., in 1864, and was iron clad, armor being set between the inner and the outer walls. It carried the remains of the martyred President to Springfield, and was then sold to the Union Pacific Railroad.

A syndicate of New York and New England capitalists, headed by T. C. Bates of Worcester, Mass., propose to consolidate the gas and electric lighting plants, ice and refrigerating plants and other enterprises of Beaumont, Texas, with a view to extending them. The plan includes the city's water system, for which the syndicate have offered \$500,000.

Standard Specifications for Gray Iron Castings.*

BY HENRY SOUTHER.

The Need of Them.

It is quite generally admitted that a good, practical and commercial set of specifications that may be used by the mass of cast iron purchasers does not exist. A few good sets are in the hands of large buyers, but they are very different—are contradictory and are not intended to cover a wide range of product. The majority of them are written to cover one industry only. It is strange that purchasers of cast iron have been so careless in the buying of it; that buyers have not looked into it long ago and demanded good and uniform cast iron for their individual needs. It is probable that cast iron has been discarded from many uses because of the failure of it in some instances, even though the failure was due to ignorance of the quality of the iron and, perhaps, to abnormally bad iron. It is not too strong a statement to make to say that some consider all gray iron from a given foundry alike and uniform, especially if they know that it is made from certain well-known brands of iron. It is likely that with standard specifications and the increased knowledge necessary to meet these conditions, the use of gray iron castings will creep into fresh fields, because of certainty of quality. This happened when steel replaced wrought iron and was made of a uniformly good quality and was thoroughly reliable. The foundryman should, therefore, welcome any good commercial steps in this direction.

Uniformity of product in soft steel is comparatively easy to attain, and yet very rigid specifications are in common use by purchasers of this material. Uniformity of product in cast iron is not easy to attain, because of the greater total of impurities in it, yet specifications for soft steel are common, while they are rare for iron. In steel, only carbon, phosphorus and sulphur are seriously important, with manganese, silicon and copper of secondary importance, and all of these elements are present in very small percentages. In cast iron, silicon, sulphur, carbon and phosphorus are all of vital importance, and are present in large percentages; each is capable of notably altering the quality of the metal. Then manganese, as a secondary element, must be intelligently used to secure advantages. Yet cast iron, with the greatest possible variations, is not watched, inspected and tested, in spite of the immense differences possible, and soft steel is, although it may vary but little in comparison. This is not because cast iron is not used at critical points, either, for it finds its way into columns, the breaking of which may wreck a building—a thing that has happened. It enters into high pressure valves and fittings that may wreck a boiler or hydraulic system, and into many important uses.

Not only is cast iron subject to chemical and physical differences under normal conditions, but, like most cast metals, it is subject to bad internal flaws and hidden defects, which cannot be detected by any means other than a test to destruction. These defects are often the indirect results of bad chemical conditions, high sulphur, for example, and it is for this reason, if for no other, that a sulphur limit must have place in specifications for cast iron.

Process of Manufacture.—There are certain grades of gray iron from which unusual strength is demanded. It is convenient to produce this grade, in many instances, in a reverberatory or air furnace. Under the specifications submitted, either method is permitted under the belief that both are good, but, unless otherwise specified, the cupola will be used. It is known that some foundries produce all grades of castings in the cupola successfully, by the intelligent use of both iron and fuel.

Chemical Properties.—It is believed that light castings must be more free from sulphur than heavy ones, because that impurity induces chill, shrinkage and flaws; such flaws as come under the broad head of "dirty iron." All of these defects are, more serious in light than in heavy work; the chill, because it is possible in

thin iron and not in thick iron, since the latter contains so much heat that it anneals itself in cooling; shrinkage, because light castings chill quickly, form a small, close grain and shrink more in consequence, whereas heavy castings cool slowly, form large, open grain and shrink much less; flaws, because a flaw of a given size forms a much more serious defect in a light casting than in a heavy one, and it is a fact that flaws induced by sulphur do not decrease in proportion to the decrease in the bulk of a casting. It is common to find "shot holes" in small castings about the same in size as those in much larger castings.

The sulphur limits placed in these specifications are within the commercial reach of any well regulated foundry, and involve no extra cost. The low sulphur limit for heavy castings has been objected to as unnecessarily low, but it is on the safe side and is insurance against bad flaws. It should be retained, as it does not increase the cost of the iron.

It is a fact that iron is sometimes stronger with high than with low sulphur. This is natural, because the grain is closer, a condition always tending to increased strength. But what use is the extra strength if somewhere in the casting weakening flaws exist at some vital point as a result of high sulphur, and far more than offset the extra strength of the sound parts of the casting? Let it be assumed that a test bar, representing a cylinder, does show unusual strength, and is high sulphur, and sound at the point of rupture. The casting itself may contain shot and blow holes enough to cause failure. High sulphur is a menace in any casting, whether it can be detected physically or not. It should be excluded as far as is commercially possible.

Physical Properties.—The figures given are from as many tests as it was possible to accumulate in the short time available after fixing on the dimensions of the test specimen. All kinds of iron are not represented, but those that are show very encouraging results, as will be noted from the attached figures:

Results Obtained from Tests Made with Arbitration Test Bars.

No.	Deflection in 12 Inches.	Strength. Pounds.	Phos- phorus. Per cent.	Man- ganese. Per cent.	Sulphur. Per cent.	Silicon. Per cent.
12,174	0.15	3,500				
12,175	0.12	3,600				
12,266*	0.09	3,500	0.630	0.30	0.128	1.810
12,267*	0.07	3,200	0.889	0.60	0.144	2.383
12,269	0.07	3,200				
12,270	0.08	3,200	0.653	0.18	0.104	2.040
12,343	0.13	3,200				
12,344	0.11	3,000	0.520	0.36	0.099	1.683
12,345*	0.12	3,200				
12,346*	0.13	3,000	....	...	....	1.584
12,429	0.10	2,800				
12,430	0.08	2,800	0.534	0.36	0.098	1.725
12,431*	0.10	3,500				
12,432*	0.10	3,100	....	...	....	1.810
12,433	0.13	3,500				
12,434	0.11	3,800	0.340	0.30	0.113	1.340
12,435	0.11	3,500				
12,436	0.12	3,400	0.364	0.28	0.101	1.678
12,480	0.14	3,600				
12,481	0.12	3,800	0.681	0.30	0.105	2.092
12,546	0.07	3,200				
12,547	0.11	3,400	0.562	0.32	0.095	1.890
12,551	0.09	2,700				
12,552	0.09	3,000	0.326	0.38	0.088	1.565
12,553	0.06	2,800				
12,554	0.09	3,100	0.377	0.36	0.097	1.631
12,638	Lost	3,500	0.536	0.42	0.088	1.974
12,639	0.10	4,100	0.687	0.23	0.089	1.960
12,673	0.10	2,900				
12,674	0.15	3,550	0.580	0.34	0.124	1.706
12,675	0.13	3,500				
12,676	0.11	3,200	....	...	....	1.852
12,729	0.15	3,500	0.758	0.20	0.099	2.101
12,730	0.11	2,800	0.756	0.20	0.111	2.125
12,731	0.15	3,000				
12,732	0.13	3,100	0.269	0.30	0.084	1.184
12,733	0.17	3,500				
12,734	0.15	3,200	....	...	....	1.800
12,752*	0.14	2,500	0.631	0.36	0.092	2.453
12,753*	0.17	2,500				
12,759†	0.10	4,000	0.382	0.16	0.170	1.462
12,760†	0.10	4,000				
12,780	0.09	2,700				
12,781	0.11	3,200	0.716	0.46	0.047	2.468
12,800	0.13	2,800				
12,801	0.13	2,800	0.690	0.48	0.048	2.695
12,838	0.15	3,700				
12,839	0.15	3,000	0.413	0.36	0.089	1.730
12,840	0.14	3,100				
12,841	0.16	3,800	....	...	0.094	1.645
12,863	0.10	3,100				
12,864	0.10	3,100	0.723	0.30	0.136	2.275
12,913	0.12	3,300				
12,914	0.13	3,300	0.663	0.32	0.129	1.683
12,915	0.13	3,200				
12,916	0.08	2,900	....	...	....	1.749

* These bars had fins. † Semisteel.

Results bracketed together signify that the iron was from the same day's cast—sometimes out of the same

* A paper read before the Atlantic City meeting of the American Institute of Mining Engineers.

ladle, and sometimes not. The writer was not able to get reliable information in all cases. The bars are from six different foundries, making very varying products. From the same foundries the inch square bars are given for comparison, being tests under exactly similar conditions. Nos. 12,761 and 12,762 were from the same ladle of metal as Nos. 12,759-12,760. These examples were selected at random from recent tests:

One-Inch Square Bars.

No.	Strength. Pounds.	Cast No.	Phos- phorus. Per cent.	Man- ganese. Per cent.	Sulphur. Per cent.	Silicon. Per cent.
12,006	2,700	2	0.765	0.36	0.072	3.305
12,011	2,700	2	0.605	0.24	0.105	2.718
12,027	2,800	11/28	0.551	0.30	0.118	1.673
12,048	3,000	11/20	0.779	0.46	0.095	2.251
12,065	3,300	11/27	0.722	0.36	....	1.951
12,079	2,300	113	0.595	0.56	0.085	2.016
12,118	3,000	2	0.580	0.16	0.081	2.769
12,157	3,000	206	0.656	0.68	0.082	1.894
12,158	3,000	207	0.651	0.36	0.115	1.866
12,170	2,300	12/10	0.670	0.88	0.074	2.947
12,198	2,600	12/5	0.535	0.32	0.110	1.434
12,200	2,700	12/8	....	....	....	1.640
12,202	2,800	12/10	....	....	....	1.419
12,376	2,400	12/19	0.644	0.70	0.097	3.158
12,420	3,000	214	0.626	0.38	0.085	2.031
12,421	2,500	215	0.614	0.38	0.091	2.007
12,427	2,500	2	0.577	0.24	0.087	2.797
12,761	2,800	Deflection in 12 inches, 0.13.				
12,762	3,000	Deflection in 12 inches, 0.13				

The theoretical ratio of strength of the inch square bar as in common use, compared with the arbitration bar, is about 0.8 to 1, or, to be exact, 0.867; that is, the 1-inch square bar is about eight-tenths as strong as the 1¼-inch round bar, all things being equal. The results of the few tests made in both shapes from the same run are close to this. Actual results do not follow theory exactly, because of the greater volume of the arbitration bar, resulting in its being softer, all other things being equal. There is less proportion of chilled metal in the round bar. The worst enemy of the cast iron test specimen is the physical defect or flaw. A smaller number of the round test bars contain flaws than of the square. It is apparent that the sharp corners attract by capillarity, or similar influence, rising bubbles of gas and entrap them in the quicker cooling metal contained in the corners. This alone puts the round bar ahead of the square, as a fair representative of a cast.

The figures show that the transverse strength limits placed are full low, and that no difficulty ought to be experienced in filling these strength requirements. It may be found later, and after obtaining more data, that higher ones are possible and advisable. With the ones given, uniformity and good quality are insured, however, which is the main object to be desired.

No upper strength limit has been placed, as the machinery properties of the iron control this. It is the opinion of the writer that a drilling test would be the best safeguard against a too hard iron. Not enough data exists at present to make proper commercial limits. The writer strongly favors the investigation of this question.

A minimum limit for deflection has been placed to guard against a strong but brittle iron. Such is not often met, but it is a factor and must be guarded against. Some of the tests given show lower deflection. In the case of the majority of them this was due to the fact that the bars were cast with a parted mold and had fins which had been ground off; in the case of others, because of accidental defects, and in the case of one set, because the directions for casting had not been followed, and the bars had been rough ground, removing the skin in spots. The normal specimens, cast as directed, were better than demanded, and as good as warranted by the chemical composition.

Tensile Test.—Nothing new is offered in this particular. The strength limits correspond to the ordinary demands and possibilities of the trade to-day, so far as any demands are made. A uniform gripping device should be adopted as far as possible, the grip being of such vital importance in cast iron tested for tensile strength.

Definition.—The classification made is approximate and will naturally be supplemented by buyers, who will specify that a given casting must conform to the specifications applying to one of the grades. This will remove all uncertainty as to which class may be meant.

Arbitration Bar.—It was the first choice of the committee that a 1½-inch bar might be used; in fact, a bar that would be as large as possible, so as to be free from all chilling influences and defects, the result of sudden cooling; in short, a less sensitive bar. It was observed that such a bar would break at too great a strength, and be beyond the limits of the majority of testing machines now in use in foundries. A diameter of 1.25 inches was therefore adopted as being satisfactory, all things considered.

The question of having one standard size of test bar arose, as compared with having several to compare approximately in thickness with the castings under inspection and thus duplicate actual cooling conditions. This is not possible. Any separate bar must cool more or less slowly than the casting. Any coupon cast as a part of the casting must be machined before testing. Such test made without the skin does not represent the actual casting, nor can like conditions be duplicated at will in this way. By having a standard bar it is perfectly possible to estimate the strength of any other bar or casting, just as in the case of the steel maker who rolls a standard test bar, say 2½ x ¾ inch, from a small 6-inch square test ingot, and from the results obtained is able to foretell the strength of the same steel rolled into a ¾-inch rod, a ½-inch angle iron, or a 1¼-inch plate. It is all a question of heat treatment, the speed of cooling, and in this respect cast iron is like steel. Cooling conditions follow very definite laws, well recognized by the average founder without his analyzing the reasons. Any grade or quality of cast iron may be purchased as well with the arbitration test bar, as specified, as by a dozen different sizes of test bars. It is a matter of comparison at the best, and one standard is enough. As a study, it would be interesting to cut out specimens from all sizes of castings, as far as possible, and the results would form a basis for future comparison; but as a commercial custom this is practically and commercially out of the question.

The importance of the tensile test has been minimized, because of the great difficulty of making true tensile tests. Abnormal strains are sure to creep in, except in the most carefully constructed machines operated by the most skilled observers.

The transverse test is within the reach of all, and, in fact, corresponds with the conditions of actual use much closer than does the tensile test. No serious abnormal strains are possible with the ordinary testing machine.

The occasion is likely to arise when the tensile test will be advisable. To meet this occasion the provision noted in the specifications is inserted. The shape of the specimen resembles the one in use by the Government quite closely, but has been modified to meet the needs of the piece from which it is to be cut, and other practical considerations. It has been made as short as possible, to do away with the chances of including flaws. It has been lengthened as compared with the Government specimen, as a specimen of that shape is likely to give results abnormally high.

Casting Conditions.—Probably the most important source of varying results in cast iron tests has been the uncertainty as to the conditions surrounding molding and casting. There never has been any uniformity in this respect, yet it is a well-known fact that cast iron is very much influenced by varying chilling effects, and is, in fact, extremely sensitive to all heat variations. Some foundrymen have molded in sand that is quite moist, others in sand that is very dry. Some have knocked the test bar out of the mold as quickly as it was cool enough to stand it. Some have cast on end and some flat and some inclined. The variations have been nearly as many as the different founders. It has, therefore, been provided that the mold shall be dry and cool before the bar is cast, and the other conditions to be noted, all tending to produce uniform casting conditions.

The writer notes that a provision to prevent knocking out the test bar from the mold has been omitted by some error. It was contained in the instructions sent for casting the bars tested. That all the conditions were observed the writer doubts, knowing that there was one infringement in the matter of casting in a parted mold, so that probably there was elsewhere. These differences

undoubtedly account for some of the abnormal variations.

Some of the bars submitted for test were cast in a parted mold, producing fins of greater or less thickness. These were naturally chipped or ground off. The result was a lower deflection, even though the fins were placed at the neutral axis of the test specimen, and probable loss of strength.

The provision stating that the test bars should not be treated in any respect before testing has been found to be most important. The facing of the mold has been particularly specified, so that the test bar shall strip from the mold in fairly good shape and ready for the test.

The objection has been made that the bars could not be made uniform enough in diameter. This is more or less true of a green sand mold, but with the casting conditions as given, when rapping of the pattern is not allowed, the mold is dry, and a given facing is prescribed, we have found this objection to almost disappear. It becomes of extremely small importance. Measurements made of 20 bars show a maximum variation of 0.039 inch, and an average diameter at the break of 1.236 inches.

Measurements of Arbitration Test Bars at the Point of Rupture.

No.	Diameter. Inches.	No.	Diameter. Inches.
1.....	1.240	11.....	1.234
2.....	1.241	12.....	1.242
3.....	1.231	13*.....	1.220
4.....	1.221	14.....	1.233
5.....	1.233	15†.....	1.180
6.....	1.244	16.....	1.236
7.....	1.236	17.....	1.243
8.....	1.246	18.....	1.245
9.....	1.273	19.....	1.259
10.....	1.231	20.....	1.238

* This bar was ground smooth.

† This bar cast with fins; rounded off by grinding.

It is interesting to note that the only bar cast with fins—that is, in a parted mold—was the most abnormal of the lot. This ought to be considered a most excellent indorsement of the proposed method of molding.

The question of the character of the supports to be used during the test has been raised, and it is believed that little need be feared on account of this. The testing machines in common use are safe in this matter. In the tests given, the point of contact, where the load was applied, has a radius of about $\frac{1}{4}$ inch, but no mark is left on the casting, and it is doubtful that this would cause any difference unless the edge were exceedingly sharp or a flat surface. The two end bearings used were flat surfaces intended to rotate on a round bearing. The rotation was not perceptible. Either bearings of this kind or blunt knife edges would answer equally well, in all probability.

Speed of Testing.—This time limit has been placed to meet ordinary practice, as near as can be ascertained what the practice is. It is within reason, in all events, and as long as the practice is made uniform by different observers it is of comparatively small moment.

Samples for Chemical Analysis.—This is a very simple provision, made with the understanding that the boring shall be taken after removing all surface matter. When the determination of graphitic carbon is to enter into the case, then the sample should be taken across the entire face or cross section of the bar and thoroughly mixed. This is necessary because of the difference in graphitic carbon always existing between the exterior and interior metal of a specimen of the size in question.

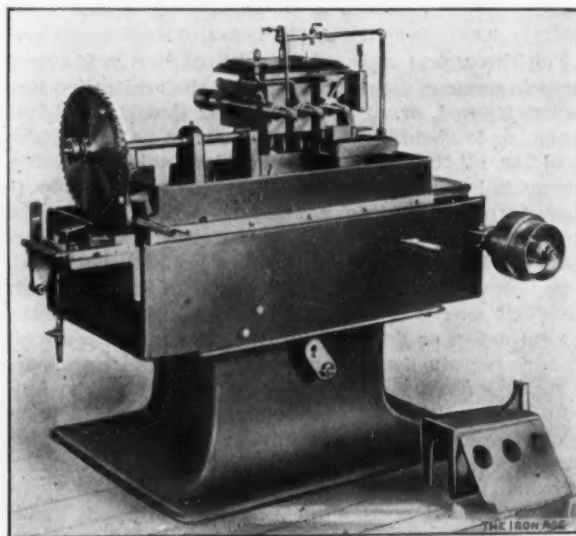
It is recognized by the writer that these specifications are not ideal, from every standpoint, nor is it possible that any commercial ones may be. Theory must yield to practice all along the line. Every engineer or manager discovers this very early in his connection with manufacturing conditions.

The committee believes that the purchaser of gray iron castings will be able, with the aid of these specifications, to get a more uniform and reliable product. It is also certain that there will be correspondingly less friction, because an order for castings will be definite as to quality, and if the foundry makes them to fill the specifications, then there can be no dispute as to the quality of the iron furnished because some machinist thinks it machines hard or thinks it look weak.

A Cross & Spiers Clock Gear Cutter.

One of the large clock manufacturers has recently been furnished by the Cross & Spiers Machine Company of Waterbury, Conn., with an automatic clock wheel cutting engine for cutting brass clock gears. By means of this machine a bunch of gear blanks, 6 inches long, is cut at one operation, the blanks being held rigidly on the spindle against a dead center, on the turtle back at the foot of the machine. The gear cutters are carried upon spindles, shown at the top of the engraving, in a slidable carriage, by traveling which the cutters are brought across the blanks, the first cutter breaking down the metal, the second trimming and the third finishing the tooth. The cutter spindles are driven by separate belts from a pulley on the rear end of the driving shaft.

The carriage is propelled by a screw, driven through a worm gear, with a slow motion in the cutting direction and a quick return, the latter being thrown in by means of a cam. The machine is started by the manipulation of the handle, shown at the front, which, through a system of levers, operates a clutch on the pulley shaft. On the end of the spindle is an index plate, the number of its notches corresponding to the number of teeth to be cut



CROSS & SPIERS CLOCK GEAR CUTTER.

in the blanks. The indexing is accomplished automatically. When the carriage approaches the end of the return stroke, a cam upon it comes in contact with the lower end of the ratchet pawl, disengaging the latter from the notch it has just occupied. With a further movement toward the end of the stroke, a lever is brought in contact with another stationary cam, which causes the index plate to revolve to the next notch. At the last notch, when the index plate has made one complete revolution and the gears are finished, the projection seen on the face of the plate comes in contact with a lever connected by a wire with the clutch on the driving shaft and stops the machine.

The clubbing of men away from work by policemen again became necessary at the steel works at South Sharon, Pa., a few days ago. When the American Steel & Wire Company's plant resumed in January 1200 Slavs and Hungarians overran the mills, demanding employment at their old jobs. Eleven policemen were then required to drive them away and to restore order. Last week fully 100 Hungarians got into the mills and caused trouble by trying to take the jobs of men regularly employed. They were put out by officers, but not until quite a number were arrested. It is claimed that this is the first time such trouble has ever occurred in the Shenango Valley, and doubtless it has occurred very rarely in any part of the United States. As there are many foreigners in the town, and not more than half of them have work, it is not unlikely that there may be more trouble of the same kind unless employment can shortly be found for them.

The Pressed Steel Car Company.

The annual meeting of the stockholders of the Pressed Steel Car Company was held in Jersey City, N. J., on Wednesday, February 17. The retiring Board of Directors was re-elected. The report submitted by President F. M. Hoffstot strikingly demonstrated the change which occurred in 1903 in industries dependent upon railroad patronage. The gross sales for the year were \$7,000,000 less than for 1902, and the balance carried to profit and loss was only \$237,506, against \$2,631,308 in 1902, which was a reduction of \$2,393,802. The detailed statement for the year ended December 31, 1903, compares with 1902 as follows:

	1903.	1902.	Decrease.
Profits for year.....	\$2,768,898	\$4,578,114	\$1,809,216
Depreciation and renewals..	260,000	300,000	40,000
Balance	\$2,508,898	\$4,278,114	\$1,769,216
Charge against previous year	\$121,392	\$271,806	\$150,414
Charge inventory adjustment	650,000	.....	*650,000
Charges	\$771,392	\$271,806	*\$499,586
Balance	\$1,737,506	\$4,006,308	\$2,268,802
Previous surplus.....	4,331,479	1,700,171	*2,631,308
Total surplus.....	\$6,068,985	\$5,706,479	*\$362,506
Preferred dividends.....	\$875,000	\$875,000	.....
Common dividends.....	625,000	500,000	*\$125,000
Total dividends.....	\$1,500,000	\$1,375,000	*\$125,000
Profit and loss surplus.	\$4,568,985	\$4,331,479	*\$237,506

* Increase.

The balance sheet as of December 31 shows:

Assets—	1903.	1902.	Decrease.
Property and franchises....	\$26,063,190	\$25,915,603	*\$147,587
Security, stocks owned.....	2,110,646	1,894,030	*\$216,616
Taxes and insurance not accrued	16,620	262	*16,358
Accounts receivable.....	857,670	1,831,085	973,415
Material on hand.....	1,536,407	4,509,627	2,973,220
Cash	3,527,165	3,728,569	201,404
Collect bills receivable.....	477,200	.....	*477,200
Totals	\$34,588,898	\$37,379,176	\$2,790,278
Liabilities—			
Capital stock.....	\$25,000,000	\$25,000,000	.....
5 per cent. first mortgage gold note.....	3,500,000	4,104,000	\$604,000
Purchase money mortgage McKees Rocks plant.....	235,000	235,000	.....
Purchase money mortgage Allegheny plant.....	75,000	75,000	.....
Accounts payable.....	797,570	3,067,134	2,269,564
Accrued salaries and wages..	120,606	257,384	136,778
Accrued interest.....	72,988	90,429	17,441
Accrued preferred dividend.	218,750	218,750	.....
Surplus	4,568,985	4,331,479	*\$237,506
Totals	\$34,588,898	\$37,379,176	\$2,790,278

* Increase.

The gross sales for the year 1903 were \$26,273,910. For the first six months of 1903 the sales exceeded the same period of the previous year 23 per cent., but the general depression in business during the last half of 1903 caused an almost entire suspension of the purchase of new rolling stock. The company built during the year 20,683 all steel and composite cars and 4,481 underframes. The sum of \$438,727 was expended in new construction during the year, the larger portion of this amount going into the erection of a new forging plant at the Allegheny works and the erection of a general office building at McKees Rocks. The new forging plant is inclosed in a steel building, 100 x 330 feet, and is arranged and equipped in a way to turn out the maximum product at a minimum cost. This plant was not ready to operate until July.

President Hoffstot, in speaking of the securities and stocks owned by the company, says: "It is important to know that dividends from these securities have been equivalent to 8½ per cent. of their cost, while their earnings have been equivalent to 12.7 per cent. of their cost. Our receipts from dividends on these securities during the year exceeded our disbursements for interest \$31,367."

The report also says: "During the year the company took out a greater number of patents than ever before, which, it is believed, will be a continued source of protection to the business. Nine suits, involving infringe-

ments of patents, were instituted during the year and are being pushed as rapidly as possible.

"The business on hand January 1 was less than at this time in previous years, but the railroads are indicating a desire to purchase cars and equipment as soon as they can make proper arrangement, so that the company hope very shortly to have their order books in reasonably good condition. The Western Steel Car & Foundry Company have considerable work booked and will shortly be running in full.

"The dividends derived from the Pennsylvania Car Wheel Company during the year were sufficient to provide for the final payment on the purchase money of that property, so that its entire capital stock is now owned by the Pressed Steel Car Company. This plant turned out during the year 122,552 wheels. The earnings of the Fidelity Land Company for the year amounted to \$27,434; \$10,000 of the \$60,000 mortgage given by this company was anticipated during the year. This concern conduct the foreign business of the Pressed Steel Car Company, which during 1903 was not of a very large volume. Changed conditions, however, have enabled the company to become active competitors in foreign fields, and a rapid increase in this business is expected.

"The Western Steel Car & Foundry Company shared in the general depression of the year, but business was transacted at a profit. The organization has been much improved, and in the event of a fair output during the next year, the Pressed Steel Car Company will be able to receive a substantial dividend from the output of this plant, but this year it has been deemed wise to declare none."

The Duluth Canal Bridge.—The Modern Steel Structural Company, Waukesha, Wis., have just been awarded a contract for a \$100,000 suspended car transfer bridge at Duluth, Minn. This bridge will be as high from the water as the Brooklyn Bridge, allowing all vessels to pass underneath. It is 400 feet long between the towers, and will be erected cantilever fashion from each shore or sea wall of the present canal at Duluth, this method of erection not interfering with navigation. On the lower chords of the span are two tracks carrying 16 trucks, from which hangs a suspended car 135 feet below, all arranged to stand the hard Duluth winds. This car is provided with two 50 horse-power electric motors connected to large winding drums, which through the aid of steel cables wound about them are arranged to pull the car across the canal in each direction every three minutes. The capacity of the car is sufficient to carry 200 people in the cabins, and the open space on the car will carry one large street car and four or five loaded wagons and teams. This structure is to be the first of its kind ever built in this country. A similar structure, being the only one in existence, is in operation at Rouen, France, made of cables and of light capacity, carrying but about 50 persons. The heavy carrying trade out of Duluth harbor has made this kind of structure necessary, as the suspended car can dodge between the boats, while with the bascule or swing bridge traffic would be blocked for hours at a time.

In regard to the report that a number of Pittsburgh capitalists had recently visited Youngstown, Ohio, for the purpose of looking over certain ground with the intention of building a steel plant near the property of the Brier Hill Iron & Coal Company, we can state officially that there is no truth in the report. The fact that the merchant blast furnaces in the two valleys no longer have a market for Bessemer iron in the Pittsburgh district means that at some future time something may be done in the direction of building a steel plant in the Youngstown district, but so far nothing definite has been done.

John R. Snodgrass of the Snodgrass Mfg. Company, Pittsburgh, has bought the property formerly operated by the Brittan-Mathes Company, at Lockton, on the Panhandle Railroad, near Pittsburgh. The Snodgrass Mfg. Company will remodel the plant and will use it for the manufacture of stoves and ranges.

The Mining Engineers.

The eighty-sixth meeting of the American Institute of Mining Engineers was held at Atlantic City, N. J., on February 16, 17 and 18, the disastrous conflagration at Baltimore, where the annual meeting was to be held, having necessitated the instant selection of another place. While there is good reason for the belief that this change was responsible for a falling off in the attendance, it is worthy of note that the interest in the professional work has rarely in recent years been so general or so well sustained. Nearly all the sessions were devoted to subjects connected with iron and steel, and the discussions were animated and suggestive.

The proceedings of the Institute began on Tuesday evening with an address by the president, Dr. Albert R. Ledoux of New York, on

The American Mining Engineer.

The address deals with a study of the factors which have led to the acknowledged superior efficiency of the American mining engineer. The chairman of a visiting British "Commission of Inquiry into the Educational Systems of the United States in Their Bearing upon National Commerce and Industry," seemed inclined to attribute it to superior technical education. Dr. Ledoux does not agree with that view. He holds that the advantages of the American mining engineer are not due exclusively to his initial education, but to the necessity for initiative, born of his environment, to the mechanical instincts of the race and to the natural buoyancy and self reliance of our people. A famous English engineer, J. H. Curle, has said that an Englishman, as a rule, has a less clearly defined idea of the net value of any given mine than an American. "We do not seem to rush in and grasp the one great fact—the profit in sight—as do Americans." Dr. Ledoux made a plea for the "open shop" as applied to methods and general information.

As being appropriate in view of the forthcoming excursion of the mining engineers to the Antilles, Harrison Souder of Philadelphia spoke on "The Mineral Deposits of Santiago de Cuba," furnishing some data collected on a recent trip. Olaf Wenstrom of Boston, in the discussion, gave some information on the famous old Cobre mines, which are now being reopened by an American company.

Wednesday morning was given over entirely to the presentation and discussion of

Specifications for Cast Iron and Castings.

Dr. Moldenke of New York, secretary of the American Foundrymen's Association, introducing the subject with a review of the work performed thus far by various bodies, and notably by the American Society for Testing Materials. He was followed by Edgar S. Cook of Pottstown, president of the Warwick Iron Company, with a paper on "Chemical Specifications for Pig Iron," which repeated largely the arguments and the information contained in a paper read before the Delaware Water Gap meeting of the American Society for Testing Materials. The specifications for cast iron proposed are the following:

Standard Specifications for Foundry Pig Iron.*

Analysis.—It is recommended that all purchases be made by analysis.

Sampling.—In contracts where pig iron is sold by chemical analysis, each carload, or its equivalent, shall be considered as a unit. At least one pig shall be selected at random from each 2 tons of every carload, and so as to fairly represent it.

Drillings shall be taken so as to fairly represent the fracture surface of each pig, and the sample analyzed shall consist of an equal quantity of drillings from each pig, well mixed and ground before analysis.

Allowances and Penalties.—In all contracts, in the absence of a definite understanding to the contrary, a variation of 10 per cent. of silicon, either way, and of 0.01 in sulphur above the standard is allowed. A deficiency of over 10 per cent. in the silicon, up to 20 per cent., and a further increase in sulphur up to 0.01 per

cent. over the above allowance subjects the shipment to a penalty of 1 per cent. in the price for each element so affected.

Base Analysis of Grades.—In the absence of specifications the following numbers, known to the trade, shall represent the appended analyses for standard grades of foundry pig iron, irrespective of the fracture, and subject to allowances and penalties as above:

Grade.	Silicon. Per cent.	Sulphur. Per cent.
No. 1.....	2.75	0.035
No. 2.....	2.25	0.045
No. 3.....	1.75	0.055
No. 4.....	1.25	0.065

In the course of the discussion B. F. Fackenthal, Jr., of Easton, Pa., president of the Thomas Iron Company, objected to the sulphur limits as too low. Dr. Moldenke made a plea for approaching the question in a broad spirit, and urged that much educational work must be done so far as the consumer is concerned. He instanced a case in which a founder asked whether silicon was a man's name. He stated that there was a feeling among some consumers that the sulphur limits in the specifications were still too high. Walter Wood of R. D. Wood & Co., Philadelphia, explained that one of the objects of the specifications was to lead the trade away from the practice of buying pig iron by grade. E. P. Roe of the Glasgow Iron Works, Pottstown, Pa., dwelt upon the advantages of sandless pig iron from the standpoint of the manager of the puddle mill. Its greater fusibility means a gain of time and a lessened loss. The greatest importance, however, is that the mill manager has exact knowledge when he purchases by analysis, whereas he is uncertain when buying by fracture. Mr. Roe cited a case of a well-known gray forge iron with 0.035 sulphur and 0.065 silicon. Yet an iron from the same source, grading as gray forge by fracture, contained 0.14 sulphur and 2.06 silicon. Irons from various shippers, all graded as mottled, contained 0.168 sulphur and 2 per cent. silicon, 0.236 sulphur and 2.4 silicon, and 0.057 sulphur and 0.24 silicon. Henry Souther of Hartford, Conn., stated that the committee drawing up the specifications had desired above all to settle upon something definite. He made the point that the majority of founders living at a distance from the pig iron producing regions never meet the furnace managers and come into contact with furnace agents solely, who only too often promise too much in their anxiety to make sales. In response to a question by James Gayley, why phosphorus had been ignored in the specifications, Walter Wood of the committee explained that the phosphorus contents of the different brands was fairly uniform and well known, so that the consumers, to obtain the phosphorus contents required, turned to the producers of those districts whose iron came nearest to their requirements.

B. F. Fackenthal, Jr., of the Thomas Iron Company, cited the following losses of silicon in remelting as affected by the presence of manganese. Thus an iron with 0.04 of manganese lost 34 per cent. of its silicon in remelting; another with 0.20 manganese, 23 per cent.; another with 0.43 manganese, 12 per cent., and one with 0.53 manganese, only 4 per cent. of its silicon, thus showing the influence of the manganese contents upon the loss of silicon in remelting. Complaint was made by a founder of the iron furnished, which carried by analysis 2.61 silicon and 0.022 sulphur. The customer returned a hard pig which analyzed 2.68 silicon and 0.022 sulphur, and a soft pig with 2.63 silicon and 0.023 sulphur, which confirmed the furnace analysis. The sample of the hard castings which the founder had complained of as being due to the iron furnished showed in one case 2.32 silicon and 0.26 sulphur, and in the other case 2.52 silicon and 0.249 sulphur, thus showing that in the cupola the sulphur contents had been increased 12 times. In another case an iron showed 2.70 silicon and 0.017 sulphur. The customer returned a number of pigs of the iron, whose fracture served to indicate hardness. They analyzed 2.85 silicon, 0.812 phosphorus and 0.052 sulphur. The castings made from the iron carried 2.57 silicon, 0.80 phosphorus and 0.319 sulphur, thus again showing a striking increase in the sulphur contents, due to remelting in the cupola.

* Proposed by Committee B of the International Association for Testing Materials.

A complaint was made by a customer that blow holes in the castings were due to blow holes in the iron. The solid part of the pig showed 2.608 silicon, 0.836 phosphorus and 0.029 sulphur, while the metal in the vicinity of the blow holes had 2.617 silicon, 0.860 phosphorus and 0.027 sulphur, the manganese in both being 0.181 per cent. In the castings the silicon was 1.178 and 0.231 respectively for the solid metal and that near the blow holes, the phosphorus being 0.864 and 0.865 respectively, and the sulphur 0.150 and 0.129 respectively. Edgar S. Cook of Pottstown made the point that the sulphur absorption in the cupola is affected by the temperature, being greater when the temperature is low. Founders ask the furnacemen for low sulphur iron, which costs considerably more to manufacture, and then so conduct the melting and make such additions of scrap that they get high sulphur castings. Rolling mill managers specify iron down to 0.02 sulphur for puddling, and then complain of kish, which does not separate out as readily with somewhat higher sulphur.

Henry Souther, of Hartford, presented an abstract of his paper on "Specifications for Testing Cast Iron," which we publish elsewhere.

Walter Wood of R. D. Wood explained the

Specifications for Cast Iron Pipe,

which are the result of conferences between the water works engineers and the cast iron pipe manufacturers. The selection of the 2 x 1 x 24 inch test bar instead of the arbitration test bar is due to the fact that the former has been for many years the standard. The water works engineers, too, lay particular stress upon deflection. As to a sulphur specification, the foundries must meet varying conditions. For thin and small diameter pipe sulphur should not go above 0.07 to 0.08, while for heavy pipe it might rise to 0.10 to 0.12 per cent. When it goes above these figures it is clear that the iron has been melted at too low a heat. Mr. Wood referred to the criticism made by Paul Kreuzpointner of Altoona, that tensile casts possess no value for the determination of quality of cast iron. Mr. Wood stated that at the foundries of his firm tests of arbitration and of standard bars are now being made simultaneously to get at comparative results which might open the door for easy transit from the latter to the former. The pipe specifications were criticised by Charles A. Matcham, on the ground that they do not specify care in molding and making the test bars, that it is faulty to cast the pipe hub down, and that it is unfair to ask that the pipe shall be kept in the coating bath at least five minutes. Mr. Wood explained that the specifications deal with different outside diameters, because it is essential to meet the extreme variations in high pressure and low pressure service; that while it would be better to cast the pipe with the head up, the opposite method has been adopted by the water works engineers, and as such is a fixed fact out of which they cannot be shaken. As to keeping the pipe in the bath five minutes, engineers have not insisted, as a matter of fact, in keeping it in longer than two minutes.

Alexander E. Outerbridge, Jr., of William Sellers & Co., Inc., Philadelphia, then presented in a highly attractive manner the substance of his paper on the "Mobility of Molecules of Cast Iron," the principal results of which were brought before the Franklin Institute recently and were referred to in a recent issue of *The Iron Age*. His report was followed with deep interest. The sessions for the day closed with the reading of a geological paper by Dr. Persifer Frazer of Philadelphia.

At the Thursday morning session the tellers announced the result of the ballot, James Gayley, first vice-president of the United States Steel Corporation, having been elected president, while Julian Kennedy of Pittsburgh and G. W. Maynard of New York were elected vice-presidents, and F. L. Grammer of Baltimore one of the managers. Dr. Ledoux, the retiring president, introduced Mr. Gayley, who assumed the chair. The first paper, one of the most important on blast furnace practice brought before the institute for a number of years, was that of W. A. Barrows, Jr., general manager of the Shenango Furnace Company, Sharpsville, Pa., on

The Use of a High Percentage of Mesaba Ore in the Blast Furnace,

which we present in full elsewhere. In opening the discussion, Mr. Gayley noted the fact that 80 per cent. of the ore reserves of the Lake Superior ranges is fine ore. Dr. Raymond took exception to the theory that the dust explosions are due to fine fuel, because the investigations of explosions in flour mills and in bituminous coal mines have proven that there must be present in the mixture a very large percentage of oxygen, which is out of the question in a blast furnace. Edgar S. Cook of Pottstown related his experience with Edison and Benson fine magnetic concentrates. The former could not be kept in the furnace unless thoroughly soaked; in fact, the best success with them was had on one occasion, when a flood in the Schuylkill Valley had put them into the best of condition from that point of view. Mr. Cook held that under certain mechanical conditions the furnace throws out ore dust even when only coarse ore is used. This was the result when he eliminated the fine ore for the purpose of testing the question. Mr. Cook cited the experience of R. H. Lee, now of Buffalo, with three furnaces of the Lackawanna Company, all of them using 50 per cent. of Mesaba ore in the mixture. At the Franklin Furnace slips occurred every day, at No. 1 Scranton Furnace explosions were infrequent, while at No. 2 Scranton they took place once or twice a week. Mr. Lee associated this with the different percentages of limestone carried at the different furnaces. At the furnace with no explosions the percentage of lime was 35 per cent., at the furnace with occasional troubles of this kind it was 30 per cent. and at the furnace with frequent explosions it was 25 per cent. Keeping the Mesaba ore in the mixture the same, Mr. Lee changed the mixture so as to need 35 per cent. of lime, when the furnace explosions ceased. Mr. Lee first used the slag from the Bessemer cupola for the sake of the silica it contained, and when that supply ran out used the nodules from the sand pit. In his own furnace Mr. Cook did not observe any differences in the liability to explosions as the result of running down in the percentage of lime. F. E. Backman of Port Henry, N. Y., made the point that fine magnetic concentrates act in a manner quite different from that of Mesaba ores. In a furnace using 66 2-3 per cent. of such concentrates explosions are unknown. Mr. Backman referred to conditions existing at a charcoal furnace which was running on 93.5 to 94 per cent. of magnetic concentrates, which all passed through a six-mesh screen. This furnace was working badly, and he was called in for consultation. He concluded that it was a question of filling. The volume of a charge of 1200 pounds of charcoal is equivalent to a layer of 3 feet, while the ore makes only a layer of 1 1/4 inches, so that the ore will not reach the center and the filling is bad. It is a question of the rolling of the ore and the slope. The same applies to some extent to the Mesaba ores, which, however, are more sticky and do not flow as easily as magnetic concentrates. Mr. Backman held, therefore, that it is largely a matter of filling to avoid the dangers incident to using fine ores.

As being along kindred lines, there was presented in abstract a brilliant paper by F. L. Grammer of Baltimore, Md., entitled "A Decade of American Blast Furnace Practice," and a paper by David Baker, until recently at Sydney, on "Stock Distribution and Its Relation to the Life of a Blast Furnace Lining." There was also presented by abstract a paper by Edward V. D'Invilliers of Philadelphia, entitled "Estimated Cost of Mining and Coking and Relative Commercial Returns from Operating in the Connellsville and Walston-Reynoldsville Districts." The meeting closed with a brief announcement by Frank M. Zeller relative to a process of separating graphite from its gangue by grinding the ore fine, mixing it with oil, washing the gangue away with a stream of water and subsequently evaporating the oil.

Announcement is made that the Mexican Government has issued an official decree increasing the duty on steel rails and other steel products to \$10 per metric ton. Action of this kind has been foreshadowed.

The Standardization of Specifications for Iron and Steel.*

Recent Progress in America and England.

BY WILLIAM R. WEBSTER AND EDGAR MARRBURG.

The desirability of bringing about greater uniformity in specifications governing iron and steel is generally recognized, and has found expression within recent years in the efforts of numerous technical societies in that direction. When the International Association for Testing Materials was organized at Zurich in 1895 a committee was appointed, charged as follows:

"On the basis of existing specifications, to seek methods and means for the introduction of international specifications for testing and inspecting iron and steel of all kinds."

The American representation on this International Committee consisted originally of five, and now of eight members. In view of the magnitude and importance of the subject, the Executive Committee of the American Section of the International Association for Testing Materials, since incorporated as the American Society for Testing Materials, appointed a committee of 34 members, including the American members of the above named International Committee, to frame standard American specifications for iron and steel. This committee reported on specifications for, 1, structural steel for bridges and ships; 2, structural steel for buildings; 3, open hearth boiler plate and rivet steel; 4, steel rails; 5, steel splice bars; 6, steel axles; 7, steel tires; 8, steel forgings; 9, steel castings; 10, wrought iron. These specifications were designed to be fairly representative of the best current American practice, and were adopted by letter ballot of the society in August, 1901.

The leading engineering societies have participated at various times in the discussion of these specifications, and have lent valuable assistance through the appointment of special committees on like or closely related subjects. The American Society of Civil Engineers discussed the specifications for structural steel for bridges and ships, and appointed a Committee on Steel Rails to report on sections, methods of manufacture, specifications, methods of testing and inspection. The American Society of Mechanical Engineers discussed the specifications for boiler plate and rivet steel, steel forgings and steel castings, and a committee of that society presented last year a report on these specifications, subject to revision, recommending certain modifications. The American Master Mechanics' Association appointed a committee to report on the specifications for steel axles and steel forgings. This committee made a preliminary report last year, and has the matter still under consideration. The American Railway Engineering and Maintenance of Way Association appointed separate committees to report on specifications for bridge materials and steel rails. These specifications, which differ somewhat from those of the American Society for Testing Materials, were adopted by vote of the association, the former in 1903 and the latter in 1902. The Committee on Steel Rails has been instructed, however, to consider certain proposed modifications.

The American Institute of Mining Engineers has co-operated in this work by discussing the specifications for steel rails, steel forgings and steel castings, and is now asked to again assist by including in the discussion on the "Physics of Cast Iron" the specifications proposed by the Committee on Standard Specifications for Cast Iron and Finished Castings of the American Society for Testing Materials. These specifications, which will be presented at this meeting by the chairmen of the subcommittees concerned, comprise: 1, Specifications and grading of pig iron; 2, cast iron water and gas pipe; 3, cylinder castings; 4, car wheels; 5, malleable iron; 6, general castings and methods of testing.

The above presentation covers in brief outline the recent history of the movement on the part of technical societies in this country in the direction of the stand-

ardization of specifications for iron and steel. The desirability of arriving at some uniform basis of reasonableness in specifications governing iron and steel products is too obvious for extended argument. The ordering of material which is to be subjected to similar or identical conditions of service under a great multiplicity of specifications, differing often more in the letter than in the spirit, is harassing to the manufacturer and of no real advantage to the consumer. The latter should recognize that any unnecessary burden imposed on the manufacturer must necessarily react in the end upon the consumer, and increase the average cost of the product without attendant gain in average quality. On the other hand, the manufacturer should recognize his obligation to spare no reasonable effort or expense to insure a high grade product of uniform quality, and should evince a willingness to provide all reasonable facilities for testing.

The existing differences between the leading specifications framed within recent years are in the main on matters of minor importance, and what has been done has resulted in a considerable clearing of the atmosphere. That further efforts will be put forth to reconcile the remaining differences as far as possible cannot be doubted. If the task be approached in a fair and reasonable spirit of compromise between interests whose divergence, broadly viewed, is more apparent than real, all parties will be the gainers. If this work be promptly initiated, it is not too much to hope that American standard specifications approved by the leading technical societies, and covering the principal iron and steel products, will be available for presentation at the seventh session of the International Railway Congress, to be convened in Washington, D. C., in May, 1905, and that they will prove an important step toward the ultimate realization of international standard specifications.

Turning now to a brief review of the present situation in England, it will be seen that much the same agencies have been set at work there, and that the outlook is in some respects even more auspicious than in America. The movement in England had its origin in the appointment by the Institution of Civil Engineers of a Committee on Engineering Standards, which began its labors in 1901. The Institution of Civil Engineers secured the co-operation of the Institution of Mechanical Engineers, the Institution of Naval Architects, the Iron and Steel Institute and the Institution of Electrical Engineers, and the appointment by these several societies of representatives on the committee. According to a recently published announcement, these "five leading technical institutions are thus actively and financially supporting and controlling the operations of this important movement."

In recognition of the great national importance of this undertaking, the British Government has lately authorized a grant of £3000 toward the necessary expenses, and the India Government has agreed to contribute the further sum of £1000.

The War Office and Admiralty Department, who are among the largest users of iron and steel, are actively co-operating in this work, and there are now more than 24 representatives of the Government on the various subcommittees. Representation on these committees has also been accorded to numerous engineering, scientific and trade organizations, to the International Association for Testing Materials, as well as to the leading manufacturing and consuming interests.

The scope of the field which this Committee on Engineering Standards proposes to cover may be judged from the following list of committees and subcommittees:

1. Sections used in Shipbuilding (11 members).
 - a. Subcommittee on Tests for Iron and Steel Material Used in the Construction of Ships and Their Machinery (23 members).
2. Bridges and General Building Construction (12 members).
3. Railway Rolling Stock Underframes (13 members).
4. Locomotives (28 members).
 - a. Subcommittee on Component Parts and Tires (14 members).
 - b. Subcommittee on Steel Plates (7 members).

* A paper read before the Atlantic City meeting of the American Institute of Mining Engineers.

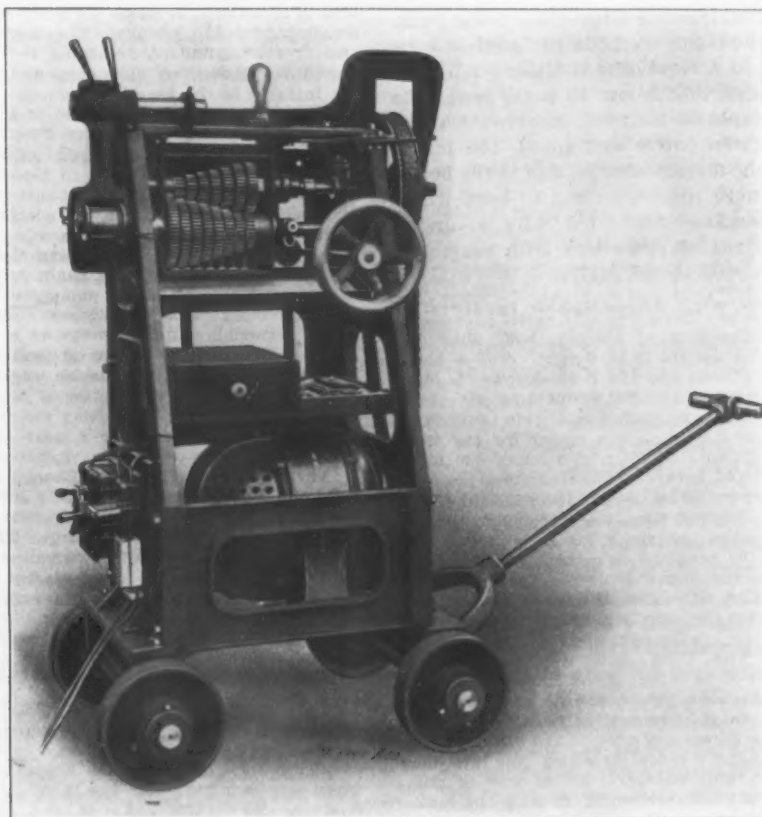
- c. Subcommittee on Tires, Axles and Springs (6 members).
- d. Subcommittee on Copper and Its Alloys (6 members).
- 5. Rails (22 members).
 - a. Section on Railway Rails (11 members).
 - b. Section on Tramway Rails (4 members).
- 6. Electrical Plant (22 members).
 - a. Subcommittee on Generators, Transformers and Motors (13 members).
 - b. Subcommittee on Temperatures of Insulation Materials (5 members).
 - c. Subcommittee on Cables and Conduits (11 members).
 - d. Subcommittee on Telegraphs and Telephones (7 members).
- 7. Screw Threads and Limit Gauges (26 members).
 - a. Subcommittee on Screw Threads (26 members).
 - b. Subcommittee on Limit Gauges (17 members).
- 8. Pipe Flanges (12 members).
- 9. Cement (17 members).

past few years toward the standardization of specifications is distinctly creditable; and it is confidently expected that the moral and financial support for continuing this work along broader lines will be forthcoming.

A Portable Variable Speed Motor Drive.

Removal of a completed machine from the erecting floor or elsewhere to a testing room where suitable driving arrangements are provided is often a matter of inconvenience, delay and expense. This difficulty, as well as numerous other features of their work which might also be facilitated, led the Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, to design and construct a portable drive, which is shown in our engraving. Although intended to serve primarily in the work of driving lathes for purposes of testing, the machine is evidently one which should lend itself to usefulness in many other ways.

The drive is a simple combination of an electric



A PORTABLE VARIABLE SPEED MOTOR DRIVE.

Three of the above committees have considered independently the question of standard sections for rolled iron and steel, and then held joint meeting and agreed upon standard sections, which have been adopted and published.

It will be seen from the foregoing that the English Engineering Standards Committee is operating on lines quite similar to those adopted by the American Society for Testing Materials. Both have recognized the desirability of giving fair representation on their committees to all parties in interest, including the manufacturers. The work is divided among numerous subcommittees, whose reports are submitted to the parent committee, which in turn makes its report to the technical societies which it represents.

The work in England is much facilitated, however, first, from the fact that the five leading technical societies are co-operating through the medium of a single jointly appointed committee, and, second, by reason of the liberal financial support which the Government has lent to the undertaking.

Notwithstanding certain disadvantages, however, the progress that has been made in this country during the

motor with a variable speed device, all carried within suitably arranged housings mounted upon truck wheels. The motor is of $3\frac{1}{2}$ horse-power, running at a constant speed of 1200 rotations per minute. The constant speed shaft of the variator above is driven from the motor by Renold silent chain gearing. The variable speed shaft may then be driven at 50, 66, 95, 123, 166, 219, 303 or 400 rotations per minute, thus making available eight speeds of the belt driving a lathe or other machine from the 9×3 inch pulley carried at the left hand end of the variable speed shaft. The height of the driving pulley is such as to afford good lead of the belt to the machine under test. A small double flanged pulley, hung from a swinging arm, serves as a tightener for use in adjusting the belt tension, and reduces the time and care which would otherwise be necessary in setting the drive to suit a belt of given length.

A new use for radium is reported by the *Scientific American*, one of whose correspondents recently tasted a small fraction of a grain of the new substance. It acted as a powerful stimulant, affecting both the heart and the

kidneys. Several hours elapsed before the pulse became again normal. It affected the mind also, producing powerful hallucinations.

The Auto Boat Show.

Saturday night brought the close of the First National Motor Boat Exhibition, held in Herald Square Exhibit Hall, Macy Building, New York City, February 8 to 20. From the standpoint of the exhibitors the affair was a success, and is likely to recur annually henceforth, as otherwise the trade represented must depend on the Automobile and Sportsman's Shows for opportunities to display its product.

The exhibits covered a dozen or more makes of motor, mostly of the gasoline type, three or four builds of launches and boats, two makes of automobiles, an automobile lawn mower, a collapsible life boat, a life preserver, electrical accessories such as batteries and magnetos for igniters, &c., boat and yacht fittings, an alloyed metal particularly adapted for marine use, and a portable boat, automobile or camping house.

Among the motor builders the advocates of the jump spark and the make-and-break methods of ignition were about evenly divided, and several offered either. All were unanimous in the opinion that below 10 horse-power the two cycle type is preferable for boat use, on account of the lighter weight for a given power and speed. In larger sizes the four-cycle is the more desirable, due to the better thermo-dynamic efficiency. For reversing to back water some of the launch engines are fitted with reversing clutches, others make use of propellers with reversible blades, and one or two reverse the engine.

Two-Cycle Engines with Jump Spark Igniters.

The Cushman Motor Company of Lincoln, Neb., showed a two-cycle motor remarkable for its light weight. The 4 horse-power form weighed 125 pounds and the 7 horse-power but 200 pounds, the two running at 1000 and 800 revolutions per minute respectively. In construction the engine is simple, with little incumbrance of outer parts. The contact maker for the spark plug is mounted on the cylinder of the piston pump which circulates the jacket water, and both are operated from the same eccentric. The carburettor works on the atomizer principle, with gravity feed, and is of a compact form. A distinguishing characteristic is a ring device on the shaft for keeping tight the crank chamber in which the compression occurs, and is claimed to be an improvement on the forms of packing previously employed. The same firm also make a stationary engine of horizontal pattern that embodies the same general features, with the addition of a fly wheel governor for regulating the speed.

Palmer Brothers, Cos Cob, Conn., build a two-cycle marine motor that runs equally well in either direction, so that no reversing clutch is supplied unless specially ordered. For oiling the crank pin, the wrist pin and connecting rod are hollow and the oil passes through them from the sides of the cylinder. The crank end of the rod also has a scoop lip which dips into oil in the base of the motor, making another positive way of oiling this part. The reversing is accomplished by opening the igniter switch, as the engine is stopping and nearly on the center, and then closing it again. Speed regulation is afforded by a slow down valve, or delaying the time of the sparking. The engine is claimed to be very nearly self starting, as it is only necessary to oscillate the fly wheel to catch an explosion. The vaporizing system is furnished rather than the carburettor system. The company manufacture a reversible propeller which offers another means of altering the speed of the boat.

Two-Cycle Engines with Make and Break Igniters.

The Lozier Motor Company of Plattsburg, N. Y., exhibited a two-cycle engine that has been on the market so long that it needs no detailed description. The mechanism is substantially designed and arranged to vary the time of the spark by varying the position of the ignition cam shafts. These are controlled from the fly wheel governor to provide automatic speed regulation.

The Western Launch & Engine Works, Mishawaka, Ind., have a two-cycle engine pleasing in its simplicity. The water jacket pump is operated from an eccentric on one end of the shaft and the igniter from another at the opposite end. The water jacket, like most of this year's forms, extends to the head as well as the sides of the cylinder. All lubrication is effected through grease cups placed in accessible locations.

The Truscott Boat Mfg. Company, St. Joseph, Mich., build a two-cycle motor in sizes of from 1 to 8 horse-power, fitted with either touch or jump spark igniter. The cylinder head is in one piece with the cylinder and the upper half of the crank chamber, and the whole is thoroughly water cooled. A reversible propeller is offered in preference to a reversing clutch. The company had a number of completely equipped launches on exhibition fitted with the engines.

The Mianus Motor Works, Mianus, Conn., build launches as well as gas engines. The 1904 model of the motor is entirely new in construction. The whole igniter mechanism is contained

in one frame and attached at the side near the top of the cylinder. The time of ignition is adjustable to avoid back kicking and to allow for variable speed. The lubrication of the machine bearings and the crank is supplied from one compression grease cup, and the oil is fed to the cylinder by an automatic sight feed lubricator. A particular feature is the expansion muffler in which the gas from the exhaust expands, is then cooled by a jet of water and passes out with very little noise and but slight back pressure.

The Fairfield Motor Company of Bridgeport, Conn., build an engine which will run in either direction without changing any adjustments, and while it is not necessary to have a clutch or reversible blade propeller, the latter is furnished if desired. The connecting rod is hollow and in alignment with a grease cup on the outside of the cylinder, through which it can be kept full of grease for the lubrication of the crank pin. The stroke of the igniter hammer is spring cushioned, for the purpose of reducing the wear and liability of breaking. It is said to be easy to start and that with a little practice it can be started by tripping the igniter. The sizes range from $\frac{3}{4}$ to 6 horse-power in the marine types.

Four-Cycle Motors.

The Truscott motor is also built in the four-cycle type in sizes from 8 to 40 horse-power. It is characterized by the same general features that prevail in the two-cycle form.

Palmer Brothers also have a four-cycle motor. One particularly adapted for automobile use has but one cylinder, with a base of aluminum, develops 4 horse-power at 700 revolutions and weighs about 175 pounds. The marine four-cycle engine uses two or four cylinders, according to the size, the cranks being placed at 180 degrees. The cams and gears operate the igniters, are inclosed in the base, and run in oil.

The Lozier four-cycle engine is a development of the past four years. The governor acts directly upon the valves in the admission valve chambers, a point of some value, as it is always desirable to throttle as close to the firing chamber as possible. In place of relief valves the exhaust valves are lifted by means of a small lever to relieve the compression when starting the engine or to cause the engine to run at a slow speed. Further regulation is allowed by changing the position of the ignition cam shafts. A rotary pump, chain driven, is used for water circulation and a small piston pump distributes oil continuously to the cams and various working parts while the engine is running. Either reversible clutch or propeller is supplied.

The Clifton Motor Works of Cincinnati, Ohio, exhibited an 8 horse-power two-cylinder marine engine and one of 16 horse-power, practically a combination of two eights. A distinguishing feature is the means of shifting the time of sparking by giving an angular displacement to a gear on the rotary igniter cam shaft.

The Yacht Gas Engine & Launch Company of Philadelphia build motors in sizes of from $2\frac{1}{2}$ to 100 horse-power. The smallest engine is intended for yacht tenders and has bed plate housings constructed of a light alloy. The 10 horse-power engine has cylinders cast in twin, without a water jacket space and with solid heads. The water jacket is made of noncorrosive metal and is secured on the sides, ends and top of the cylinders. The Holley carburettor is used and the jump spark method of ignition. The 10 horse-power engine weighs 600 pounds.

Other Engines.

The International Power Vehicle Company of Stamford, Conn., have recently developed a kerosene oil engine for stationary and marine use. They claim a consumption of only 1 gallon of oil per horse-power for ten hours' continuous running. A fly wheel governor regulates the speed by throttling the explosive mixture. No electric igniter is used. In starting, the flame of a torch is directed against the cylinder head until it becomes hot, after which it will retain sufficient heat in itself to continue the burning of each succeeding charge.

The Phillips valveless high speed engine for steam or compressed air was one of the newest motors shown. It has three single acting cylinders placed around the shaft 120 degrees apart. Steam is taken through longitudinal ports cut in the shaft, thence passing into port boxes which communicate with pipes leading to the head end of the cylinders. In this sense it is valveless. The engine shown has a maximum speed of 1800 revolutions per minute running free under a boiler pressure of 100 pounds. The cylinders are 3 inches in diameter by 3 inches stroke, the weight 110 pounds and the capacity 16 horse-power. A consumption of 30 pounds of water per horse-power per hour is claimed.

Miscellaneous.

The Fredonia Mfg. Company, Youngstown, Ohio, had two of their No. 2 tonneau touring cars on exhibition.

The Englehardt Collapsible Life Boat Company of Long Island City, N. Y., had a small model life boat for demonstration purposes and a 10-foot standard size boat.

The Springfield Moulding Works of Springfield, Mass., exhibited three portable houses for boat and automobile storage.

The Victor Metals Company of East Braintree, Mass., displayed their manganese bronze, common bronze, anti-friction and noncorrosive silver metals. The latter is claimed to be salt water and acid proof, nontarnishing, as strong as iron and capable of taking a high finish. The tensile strength is given as 53,250 pounds and the elongation 16 per cent.

The Carlisle & Finch Company, Cincinnati, Ohio, manufacture search lights for launches and yachts, igniting dynamos and magnetos for gas and gasoline engines, and had various samples of each on exhibition.

A New Cuban Tariff.

Increased Duties That Offset Reciprocity Concessions.

WASHINGTON, D. C., February 23, 1904.—The Department of Commerce and Labor is in receipt of a report from the United States legation at Havana, transmitting the details of the recent revision of the Cuban tariff promulgated on February 1 and effective on February 5. The revision consists in an increase of from 15 to 30 per cent. in the rates of duty on nearly all items embraced in the Cuban tariff, by far the larger number having been raised 25 or 30 per cent., thereby offsetting the reduction in duties provided by the reciprocity treaty. The changes in the metal schedule are indicated as follows, the numerals indicating the paragraphs of the tariff law:

Twenty-five Per Cent. Increase.

9. Ores.
25. Gold and platinum, or alloys thereof, in jewelry, with or without precious stones or pearls; silver in jewelry, with precious stones or pearls, and precious stones, pearls and seed pearls, not set.
26. Gold or platinum, or alloys thereof, wrought in articles, other, of all kinds.
27. Silver in ingots, bars, plates, sheets or powder.
28. Silver, in jewelry, without precious stones or pearls.
29. Silver wrought in articles, other, of all kinds, and platinum in ingots.
59. Copper scales (laminae), copper of first fusion, old copper, brass, &c.
- 60-62. Copper and alloys of copper, in ingots, rolled in bars of all kinds, and rolled in sheets.
- 63-65. Copper wire and copper wire gauze; conducting cables for electricity over public thoroughfares.
66. Copper pipes, bearings, plates for fire places, and boiler-makers' wares, partially wrought.
67. Copper nails and tacks, except as included in paragraph 301.
68. Copper pins or pens, crochet hooks or hairpins.
69. Articles of copper and its alloys, not specially mentioned.
70. Articles of copper and its alloys, gilt or nickel, not specially mentioned.
71. Mercury.
72. Nickel, aluminum, and their alloys, in lumps or ingots, bars, sheets, pipes, wire, and in other articles of all kinds.
73. Tin and alloys thereof (Britannia metal), in lumps or ingots, bars, sheets, pipes, wire, and in other articles of all kinds (excepting tin foil and capsules for bottles comprised in 73c, which are dutiable according to the previous tariff rate).
74. Zinc, lead and other metals, not specially mentioned, and their alloys, in lumps or ingots, bars, sheets, pipes, wire, and in articles gilt or nickel; shot, type, zinc nails and tacks.
214. All weighing machines, including scales and detached parts thereof.
- 217-226. Stationary steam motors; marine engines; steam pumps, hydraulic, petroleum, gas, and hot or compressed air motors; boilers, of sheet iron or tubular; locomotives and traction engines; turntables, hydraulic cranes, and columns; machines of copper and its alloys, and detached parts of the same metals; dynamo-electric machines, inductors, and detached parts; sewing machines and detached parts; velocipedes, bicycles, and detached parts and accessories thereto, and bicycle lamps, and other machines and apparatus not specially mentioned, and their detached parts.
- 232-234. Sailing vessels and steam vessels of all kinds.

Thirty Per Cent. Increase.

- 32-34. Cast iron bars, beams, plates, grates for furnaces, columns and pipes; lubricating boxes for railway trucks and carriages and railway chairs, and all other cast iron articles except pigs, polished or not, turned or not, ornamented or not.
36. Wrought iron or steel rolled rails, bars of all kinds, including rods, tires and hoops, and bars of all kinds of fine crucible steel.
37. Wrought iron or steel rolled sheets of all kinds, including hoop iron (excepting tinned and tin plate, which is dutiable according to the previous tariff rate).
- 38, 39. Wrought iron or steel, cast in pieces, unfinished or finished, including wheels, fish plates, chairs, sleepers, springs, straight axles, bent axles, cranks, and lubricating boxes.
- 40, 41. Wrought iron or steel pipes and wire.
42. Wrought iron or steel in large pieces, composed of bars, or bars and sheets fastened by rivets or screws; the same unriveted, perforated, or cut to measure for bridge frames and other buildings.
- 43-46. Anchors, chains for vessels or machines, moorings, switches, signal disks, anvils, wire gauze, cables, netting, furniture springs.
47. Wrought iron or steel tools and implements of all kinds (not apparatus).
48. Screws, nuts, bolts, washers, rivets, nails, clasp nails, tacks, and brads.
49. Saddlery hardware made of iron or steel, including bits, spurs, and all iron or steel finishes for common harness.
- 50-52. All iron or steel buckles, needles, pins, pens, crochet hooks, hooks, and hairpins.
53. Cutlery of all kinds; scissors; pocket cutlery; fishing

hooks; surgical, including dental, instruments; slide arms (not firearms), and pieces for the same; razors.

54, 55. Small arms and barrels and their detached parts; sporting arms and their detached parts.

56. Manufactures of tin plate.

111. Gun powder and explosives; miners' fuses; fireworks.

303. Cartridges, with or without projectiles or bullets, for unprohibited firearms; also primers and caps for such arms.

The new Cuban tariff is the result of action taken by the Cuban Congress almost immediately after the reciprocity arrangement went into force on December 27 last. An abortive attempt was made by the Congress to pass a bill increasing the duties sufficiently to offset the loss of revenue caused by the operation of the treaty, but the purpose was so palpably to discriminate against American products that protests were lodged with the Cuban Government by the diplomatic and consular representatives of the United States, and after the discussion of a variety of projects, including the appointment of a commission, President Palma was authorized to revise the tariff in his own discretion, with the understanding that increases should be limited to 30 per cent.

Schedules Criticised.

The schedules as promulgated are very sharply criticised by representatives here of manufacturing and exporting interests in various parts of the country, on the ground that the commerce of the United States will suffer as the result of these modifications, the leading industries being wholly deprived of any advantage that might have accrued from the reciprocity treaty. It is pointed out that in the metal schedule, for example, the rates have been advanced to the maximum of 30 per cent., notwithstanding the fact that practically all of these goods now come from the United States. It was urged on behalf of the reciprocity treaty, when that convention was pending in Congress, that the proposed reduction of 25 per cent. in the duties on these products would cheapen them sufficiently to materially increase their consumption in the Island. It was at no time suggested that the reduction was necessary to give American manufacturers and exporters a larger share of this particular trade, which they very nearly monopolized before the treaty was negotiated. With the increased rates in force the duties on the metal schedule are left practically where they were before the treaty took effect. As an illustration, an article may be taken upon which the original duty was \$1 per 100 kilograms. Adding 30 per cent. of this duty and rebating 25 per cent. of the new rate on account of the treaty, the resulting duty is 97½ cents per 100 kilograms.

But the metal schedule is not the only one similarly affected, according to the representations now being made to the State Department. Meats and food products of all kinds, practically all of which are imported from the United States, have been advanced 25 or 30 per cent. while the same treatment has been accorded petroleum products, crude and refined, drugs, pharmaceutical goods, chemicals, printing paper, and other leading lines of American merchandise. On the other hand, the minimum increase, 15 or 20 per cent., has been levied upon textile products of the kinds and qualities which are chiefly imported from France, Germany and Great Britain, and which American manufacturers and exporters have hardly hoped to sell in Cuba except under the most favorable conditions. The reduction made by the reciprocity treaty was claimed to be insufficient to give these American goods a foothold in the markets of the island; under the new conditions they can hope to do no better.

Action by State Department.

The State Department has taken up very vigorously the complaints of a large number of exporters, whose shipments to Cuba have resulted in heavy losses as the result of the interpretation of the customs laws by the Cuban officials. When the reciprocity treaty took effect the United States Government granted the benefit of the reduced rates to all Cuban merchandise in bonded warehouse in this country on which no duties had been paid, provided such merchandise was imported within three years prior to the taking effect of the treaty. The Cubans, however, refused to grant the reduced rates on any merchandise except such as actually reached the island after the treaty went into force, the result being heavy losses to American exporters who shipped goods to Ha-

vana and warehoused them there in anticipation of the taking effect of the treaty.

More recently the collector at Havana has refused to permit American products to be imported at the reduced rates, wherever it appears they have been transhipped in a foreign port, or indirectly imported through another country, notwithstanding the fact that the treaty stipulates that the reduced rates are to be paid upon all goods "the product of the soil or industry of the United States imported into Cuba."

The latest discrimination of which complaint is made relates to the interpretation of the new tariff, the collector at Havana holding that the increased rates must be paid on all products in bonded warehouse when the new tariff took effect. In other words, while refusing to make the reciprocity treaty retroactive as to goods in bond, the collector at Havana now gives an *ex post facto* interpretation to the increased duties which took effect on the 5th inst. Nothing could be more inconsistent or absurd from an administrative standpoint, and the United States legation at Havana has been instructed to insist upon a modification of the new ruling, so that all goods placed in bond after December 27 and before February 5 shall be entitled to be withdrawn for consumption at the old rates of duty, and with benefit of the reciprocity concessions.

W. L. C.

A Decade in American Blast Furnace Practice.*

BY F. LOUIS GRAMMER, BALTIMORE, MD.

The iron industry has been so markedly the cynosure of all eyes that a sense of weariness has overtaken many on-lookers, and a new wonder is desired.

While the commercial phase of the iron industry has necessarily engrossed the public attention, and probably is the more worthy of record, still the mechanical and metallurgical phases have recorded conspicuous advances and merit attention. In order to appreciate the present condition of blast furnace practice it is necessary before enumerating the advances made during the past decade to give a brief discussion of the tendencies in the methods of administration as well as the conditions governing supremacy, for these factors have modified the aims of the manager.

Methods of Administration.

Nowadays the administration at some plants is such that the superintendent has become a train dispatcher or a burden clerk, and this is particularly the case in those plants in which the engineering duties have been divorced from the executive functions of the superintendent, and where the preparation of ores is made at the mine rather than at the plant. At such plants, usually consisting of four or more units, the proper feeding of the furnaces with a mixture, which the past has demonstrated will not make it ill, has become one of the superintendent's primary duties. The traffic management also is important, and at several plants, running from 3000 to 14,000 tons of raw material daily, excluding metal made, is equal in tonnage to that of many railroads. In addition to the traffic consideration the cost and supplying of labor in these troublesome labor times is properly deemed ample responsibility for the superintendent.

This distribution of duties, in line with the general tendency of the age to differentiate the duties of the laborer and the under executive, as well as to integrate between wider limits the responsibilities of the fewer and more powerful higher executives, has resulted in many benefits and some colossal errors. It has required the superintendent to be more a reader of events and men, while the engineer becomes more concerned with new devices to harness nature. In the most powerful companies this division of duties has usually resulted in good, but in those plants, like Saxe's razors, "made to sell," many mistakes have been made.

We can look around and see plants well arranged to make iron, but no iron mines to supply them. Others have fine mills, but no furnaces; others, no market. And so the whole decalogue of managerial sins, resulting from a

bureaucracy or directorate of untrained iron men, can be run.

While largely due to perfected means of communication, the present state of affairs is indirectly traceable to the Bessemer process, whose Gargantuan appetite suggested the assembling of a large number of units near together. It affords a picture presenting marked contrasts to the time of Baron Stigel, whose return home, after an absence, was heralded by bonfires from the hill-tops and the booming of cannon. It was a paternal management and included such diverse industries as charcoal burning, road building, farm management, pottery making and forge running; a Pooh-Bah list of duties, picturesque, if not conducive to the rapid development of an industry! His contract that a rose a year should be deposited on his grave forever, at a church in Manheim, Pa., in lieu of a ground rent, is not one that we imagine the iron masters of to-day would make.

The present conditions are even very different from the management under the Coleman family, so long a powerful and beneficent influence in the industrial world. Their manager was regarded as a family retainer, with interests permanently identified with the family welfare. Under their employ the superintendents were as much engineers as managers.

The Bessemer process, by inaugurating the general policy that each process is the servant of the succeeding process, made the furnace the servant of the converter, and the converter of the rail mill; and in the other direction the coke oven and the ore mine bore the burden of the furnace superintendent's criticisms. A marked instance of this is told by a Mr. C., who ran the furnaces for a large plant in the Middle West. At one time he was being hauled over the coals rather roughly by the owner because the mill was not getting the silicons it wanted. At last in petulance he said, "Are there no rights of the furnaces that the mill is bound to respect?" The answer received was final, "Not one."

Such a condition of affairs made the furnace superintendent's prestige depart, and his responsibilities are aptly described by one manager as being limited to the coke-barrow and the tapping-hole. On the other hand, the mechanical engineer and accountant came to the front. As a result of those changed conditions we now find casting machines introduced at plants where the highest mechanical efficiency is represented by a clever use of wedge, sledge and crowbar. We find automatic chargers used where the double-ring bell, used so successfully by Mr. Firmstone and others, should be used. We find the 100-foot furnace treating magnetic ores and having a number of moves, which as managers and metallurgists we were taught to deplore. In short, if the advances became more rapid they were not always judiciously balanced. The pressure of fashion is so great that many do not consider whether it is personally becoming; in fact, local conditions are ignored.

On the strategic side we find, whereas formerly the ownership of a good ore property and a good location near the market was supposed to be all that is necessary for manufacturing independence, now one should own the cars, coke ovens, coal mines and frequently the railroad and the stone quarries, as well as the plant of your former purchaser.

Therefore, at the plant not independent of fuel supply, or whose fuel is expensive, fuel economy is the first consideration, while at the plant in a disturbed labor market labor saving devices are of a paramount importance, and at the plant which controls the market the size of the output is the first virtue. Obviously, with such a variety of aims, the chief requirement of one plant may be of secondary importance at another.

In looking over the development of furnace-practice, four steps or incidents appear as the more important factors: 1, the use of waste gas under boilers; 2, the heating of the blast; 3, the use of coke as a fuel, and 4, the use of lake ores. Each of these steps has resulted in a doubling and trebling of the output which was possible before their introduction. Of course, improved refractory materials and better engines were essential, as was also a knowledge of chemistry, but these influences should be

* A paper read before the Atlantic City meeting of the American Institute of Mining Engineers.

regarded as secondary and logical sequences to the others. The better application of the knowledge classified under these four heads represents the development in America.

A decade ago lines of furnaces and cooling devices occupied the thoughts of the furnace world. Since then the advances made may be classified as follows:

1. Conveyors and other mechanical improvements.
2. Metallurgical by-products.
3. Miscellaneous.

Mechanical Conveyors.—The use of lake ores increased tonnage so rapidly that the simple handling of ore, coke and stone became a serious problem, and, as the properties became more and more under one control, the unnecessary moves of ore into boats to be unloaded onto docks, and to be again reloaded, were reduced. Steam shovels, like the Marlon, Bucyrus and the Thew, were used to dig the ore out of the mines and to transfer it from the stock pile into the car. Messrs Hughlett, McMyler, Hoover & Mason, and the Brown Hoisting Machinery Company devised means of economically unloading the ore from vessels of many hatches. By means of these devices, and large pliers at the shipping points, the hours when the boats were idle were minimized.

The rolling mill principle of keeping the passes of the rolls full of metal, and the transportation virtue of keeping as many trains to the mile as is compatible with safety, were applied to the movement of the raw materials from the mines to the furnace. The steel cars reduce the cost of unloading by their steep bottoms, and these, with the bin-system, as at Duquesne, and car over-turners and bridges, as at Youngstown, represent the chief changes in the matter of handling raw material. In moderate climates, where labor is expensive or troublesome, the devices have frequently paid well, and are sometimes necessary where the season for bringing the ore from mine to furnace is limited. Personally, I think that the skip hoist, the last labor saving step before the raw material enters the furnace, has not infrequently been introduced where the double-ring bell would have been better; this restriction, however, is not applicable to the general run of lake ores. Walter Kennedy, M. A. Neeland and E. G. Rust designed skip hoists which may be regarded as representing the three types. Walter Kennedy's descending bucket passes at the side of the ascending bucket, and acts to some extent as a counter balance; in the hoist of Mr. Neeland one bucket only is used, and in that designed by Mr. Rust the ascending and descending buckets pass over and under each other.

Use of Wash Ores.—Mr. Firmstone showed me some charts of silicon and sulphur in basic metal made from wash ores varying from 10 to 12 per cent. silica, which in their regularity and percentage of off-cast compared very favorably with the best practice in Pittsburgh; the furnace using these ores was equipped with a double ring bell. I believe that such regularity with material of this character will astonish most of the Pittsburgh iron makers.

Valves.—In the question of valves some attempt has been made to improve on the Mushroom and Berg valve seat, the Spearman and Kennedy burner, and the cold blast valve; save that they are made somewhat thicker and larger, they are substantially as they were a decade ago. The cutting action of Mesaba ore has suggested the multiplication of false seats and flanges on the stoves.

Tap Hole Gun.—The Vaughn gun makes the work of stopping the hole easier on the men, and is especially satisfactory if operated by compressed air.

Direct Process.—The extensive adoption of that very important link in the iron-plant—the direct process and the mixer—has suggested the undesirability of carrying a gang of specialized workmen all the week simply to carry out and break the iron on Sunday, when the converter is idle. This condition of practice has resulted in the invention of casting machines.

Casting Machines.—James Scott and E. A. Uehling have cojointly perfected the Uehling casting machine, which is a monument to their perseverance in overcoming many obstacles. The Heyl & Paterson conveyor uses lampblack in place of lime, and pressed steel pans in place of cast iron ones. I have always found the electric breaker at Duquesne, if used in connection with the iron chills, less expensive and more satisfactory, though the

iron cast in it is not so easily handled nor so attractive in appearance. Pig iron casting machines require more attention and are more easily thrown out of order than the electric breaker. Besides the above mentioned there are the Davies and Aiken pig iron casting machines, whose merits commend them to some. The iron chills were necessary because of the rapid growth of the basic process, in which sand and silica are most objectionable materials. In addition, the use of iron chills saves the labor of molding the pig bed in sand, and from them the idea was extended of making the runners and the skimmer of iron, the latter to a great extent doing away with bolls.

Slag Car.—The Weimer slag cars, lined with iron thimbles, have been introduced practically to the exclusion of all others.

Slag Disposal.—In a few plants the slag is run into pits and granulated, and then lifted onto cars by means of cranes and orange peel buckets. This method is very economical, and is especially applicable when it is necessary to dump the cinder at a great distance from the plant, more especially if it can be utilized for manufacture into cement. One disadvantage of granulating the slag is that it may cause annoyance by creating a cloud of steam at the time of casting the iron. In some plants the slag is run into dishes, or metal pans, working on a conveyor, and after it cools it is broken up and carried away for use as railroad ballast, a method which is advisable if the slag is non-slacking.

Recording Gauges, &c.—The introduction of more recording gauges for steam, air blast, vacuum pressure and temperatures of blast and escaping furnace gases marks the advance of furnace practice into a state of better control.

The extensive introduction of the direct process and the pig casting machine has, in a few cases, caused the abandonment of the cast house, except a small building which is required to cover the cinder and the iron in their passage to the ladles.

Dust Pockets.—The use of Mesaba ores has made an increase in the number of dust pockets on the gas main. These pockets, as well as the dust catcher, are now suspended above a track, so that when the pockets are dumped the dust will fall into the cars which have been run underneath them.

Ladle Drying.—The iron ladles, in the absence of natural gas, are frequently dried out by burning the blast furnace gas brought to them in a small flue.

Gas Flues.—In a few American plants the gas flues are not lined with brick, but the great majority use cheap fire brick and do not copy foreigners in this practice.

At some places, as at Braddock, a satisfactory water seal valve is used to isolate a furnace from others on a common system of gas flues, for which purpose the Rothoff valve is extensively used.

Gas Mains.—Almost all gas mains are now overhead, and underground mains are avoided. Not only is the steam system universal in the modern plant, but the tendency is to make the gas flues universal. If one of the furnaces is cold and its gas, therefore, not suited for stoves, the gas from the three other furnaces in the system will help to maintain the stove heat on the one that needs it; in a similar manner the gases from the many furnaces tend to keep the steam pressure regular.

Boilers.—The introduction of water tube boilers marks the further attempt to obtain the full power-possibility of the escaping gas, the Babcock & Wilcox, the Sterling, the Cahall being those the most generally adopted. The numerous water softeners, generally based on the principle of having the carbonates precipitated by lime and the sulphates decomposed by soda, have enabled water tube boilers to be more extensively introduced. The old idea that because there is an excess of gas, and on account of the ease with which scale can be removed, cylindrical boilers should be used, has passed away.

Use of Compressed Air.—Compressed air in place of steam is being quite extensively used for such purposes as the operation of the furnace bell and the mud gun. It does away with the danger of burning the men and of having the water condensed around the tapping hole and freezing around the furnace top.

Steam Pressure.—The economies in the use of blast furnace gas have become so extended that we now econo-

mize also on the steam obtained from the gas. In place of the 80-pound pressure of 12 years ago, and the 60-pound pressure of a decade earlier, we now use from 120 to 150 pound steam pressure in connection with compound engines, condensers and feed water heaters. The engines are of heavy frame and the air valves are positive acting, which gives a higher efficiency of delivery. Without the modern engine equipment it is probable that the present phenomenal outputs could not have been attained. Despite the fact that a finely divided ore is reduced more rapidly than a lumpy, coarse ore, its use requires a greater blast pressure, and a larger volume of blast, else its fineness will not be taken advantage of; therefore, if the increased pressure and volume could not be supplied, the output would be smaller than when using lump ores. I remember visiting a plant where this fact was not appreciated by the owner. It had too many engines and too many boilers, but the furnace could not get a sufficient quantity of blast to satisfy its hearth area. The steam pressure was only 60 pounds per square inch and the blast pressure only 12.

The Southwark Foundry & Machine Company, the Allis-Chalmers Company, the shops of the William Tod Company, and, latterly, several others have met the new conditions—not, however, without some tribulation, for a 100-foot furnace requires more work to be done than a 90-foot one, this latter dimension being, in my opinion, metallurgically more desirable. The hoist engines in the majority of cases remain extravagant users of steam. Several plants have introduced electricity to operate the hoist. In a few plants happily designed, where the height of the furnace is not over 90 feet, there is a surplus of steam obtainable from the furnace gas after supplying the power demands and the stove demands. These plants sell the surplus steam to the adjacent mill. In many other plants the increased blast pressure resulting from the excessive height of the furnaces or other conditions have nullified the steam economies resulting from the improved machinery. In some instances it has been deemed advisable to use the surplus gas to attain a higher temperature of blast (with the view of having a lower fuel consumption) rather than to sell it to the mill.

Hot Blast Stoves.—In hot blast stoves the bottom rings are now made of such a height that the riveting on of door frames, ports and branches is done without crossing a seam. These plates are also made very much heavier than formerly because of the higher blast pressure now used. Stoves of the central combustion chamber type seem to be gaining in popularity, and brick specially shaped for the checker work continues to be extensively used.

Refractory Brick.—The brick manufacturer has been fully abreast with the requirements, and supplies a cheap brick for the ladle lining, and a brick free from iron suitable to withstand abrasion for the furnace top, and one free from alkalies and bases for use with high heats. Prior to the year 1890 a blast furnace campaign lasted from 18 to 30 months; now it exceeds eight years, and several furnaces have produced more than 1,000,000 tons of pig iron with one lining, which has reduced the relining charges per ton of iron produced from 50 cents to less than 15 cents.

Shields.—A number of shields and protectors have been devised to protect the lining of the upper part of the furnaces from the abrasions of the stock rolling off the bell against the top walls. Of these that I have seen the best is a suspended sheet of heavy rolled steel, which was introduced by Mr. Firmstone at one of his plants. As used by him, an annular opening extending completely around the furnace top was obtained for a gas outlet.

Water Cooling.—At many plants having a small supply of water a wooden waterfall is used for the purpose of cooling the condensing water for repeated use.

By-Products.—There has been a rapid growth in the use of slag cement which is placed on the market under the name of "Puzzolini," a name derived from the natural cement rock of Italy. Slag cement is used as a substitute for Rosendale cement for purposes not requiring the highest degree of reliability. Among other places, it is manufactured extensively in Chicago, Ill.; Youngstown, Ohio, and at Sparrow's Point, Md. The process of manufactur-

ing slag cement has been frequently described, and is being so improved that its consumption will probably increase. In charcoal manufacture ammonium acetate and wood alcohol are obtained as valuable by-products, and the by-product coke ovens yield ammonia, tar and gas.

Flue Dirt.—The loss of flue dirt in the treatment of mixtures containing a high percentage of Mesaba ore has suggested the use of gas washers and briquetting machines. The Steece and the Roberts washers are those in most general use. The Henry S. Mould briquetting machine has been introduced at several plants to recover the ore that has been blown over from the furnace. The loss through flue dirt can unquestionably be lessened by the study of conditions.

Saving of Gas.—The introduction of a double bell, preventing the issuance of gas during the lowering of the charge, has resulted in a saving of from 10 to 15 per cent. of the gas. At several plants using a single bell the average time during which the bell was open exceeded 2 hours and 40 minutes.

Blast Furnace Working.—Impressive as is the metallurgical practice in America, it exhibits inventive ability less than natural resource. We owe more to the regions named after that emissary of peace, Père Marquette and the tribes he went out to civilize and Christianize (Menominee and Gogebic), than we do to original research. It is true we have the Uehling pyrometer of American origin, which is an instrument of great precision and of great value to the furnaceman. Our records, however, are characterized by bold application rather than new ideas. Our high furnaces do not reflect great credit on their designers, though, in justice, it should be said that most furnacemen were not in favor of 100-foot heights. I have personally inspected more than 60 furnaces, and I find that the fuel consumption, other conditions being equal, is lower on furnaces of from 70 to 80 feet in height than on furnaces exceeding 90 feet.

With very irregular ore or fuel and very expensive coke it is a question whether a very large output per furnace is desirable. A bad cast if small is more easily taken care of by the mixer than a very large cast. The principal reasons, however, why our fuel economy has not improved (in fact it has gone backward) are as follows: The coke ovens have been insufficient to meet the increased demand, and in order to increase production the time of coking was shortened, which has resulted in a poorer quality of fuel. Then, again, the shortage of cars has caused many furnaces to be repeatedly banked, which has consequently increased the coke consumption. Many cokes formerly considered too high in ash, and, therefore, low in carbon, have been put on the market. Finally, the furnaces mixtures used have been leaner. The stove heating capacity has not kept pace with the blowing power, consequently lower temperatures of blast were used, resulting in a higher fuel consumption. In several instances it was considered desirable, in view of a brisk market and large profits, to use the furnace gas for making more blast, rather than to save the coke, by using a high temperature of blast.

Generally speaking, the silicon requirements for Bessemer iron have been lower, depending upon the location of the plant and other conditions. The average percentage of silicon may be taken at 1.1 per cent. in summer and 0.9 per cent. in winter. The lowering of silicon demands has been in the furnaceman's favor. A brisk market also has lessened the severity of the demands of the mill in sulphur. I think in some quarters there is a greater tolerance of sulphur than existed ten years ago. In other quarters the metal must be remelted if it exceeds 0.05 per cent. sulphur.

Owing to the improved preparation of raw material, the furnaceman is supposed to be able to keep the sulphur down without the use of manganese, and as high manganese percentages, through the great spluttering they occasion, prevent the forcing of the work in the converter, this element is a greater detriment in iron ores than it was in the beginning of the past decade.

The increased purchase of ore containing a higher phosphorus content has accompanied the rapid extension of the basic open hearth steel process. It is not unusual upon the shutting down of the converter on Saturday af-

ternoon, while the metal is being run into the chills or through the pig casting machine, to put a basic mixture in the furnace, a procedure which is especially desirable if the furnace capacity of direct process metal is sufficient for the converter capacity and need not be supplemented by remelting the Sunday's product in a cupola furnace. The direct process, with the great advantages afforded by the closing down of the cupolas, has been greatly extended, and molten metal in Pittsburgh and Cleveland is carried in 20-ton cars for more than a distance of 5 miles.

The use of multiple tuyeres has not always been attended with satisfaction, and a more conservative estimate of their benefits now prevails.

The drying of furnaces preparatory to "blowing in" is now much shorter in time than was the practice a decade ago, many thinking a week quite sufficient. During the blowing-in period the burden is now increased more rapidly, and the quantity of wood used is very much less than formerly. I know a very successful operator who uses no more than a cart load of wood for blowing in a large furnace, and a few who light the furnaces in starting by means of red hot iron bars, introduced through the tuyeres, while the blast is on. Red hot charcoal also is satisfactorily used by some, who blow it through the tuyeres during the starting of the blowing in. The hot blast stoves can now be heated higher previous to starting than was formerly practicable, owing to the use of natural gas or the universal gas main.

A saner treatment of the tap hole now prevails, due to the recognition that an exceptionally large product for a single day means little, and as a consequence the last portion of iron in the crucible is not drawn out by long prolonged blowing at the tap hole. The blowing at the tap hole leads to break outs, on account of the heating up of the furnace front.

The blowing away of furnace bell and hopper by slips, which frequently occurred after the introduction of Mesaba ore, are now unusual. This usually disastrous irregularity was then attributed to a so-called dust explosion, but I think this assumption is wrong, and the irregular working, even with high percentages of Mesaba ore in the charge, can be obviated. The proportion of Mesaba ore used in the ore mixture has, in exactly a decade, increased from 25 to 100 per cent., a furnace in Pittsburgh having been blown in recently with the ore mixture composed entirely of Mesaba ore.

While the ingenuity of American metallurgists savors less of the lamp than that of European engineers, still, in the recognition that fine ores are quickly reduced in the furnace (analogous to the manner in which salt enters more readily into a solution if the more finely divided, and its corollary, that a finely divided material must be given a large volume of solution in order to dissolve it rapidly), and by applying this principle, American engineers have acted with great promptness and received enormous returns.

The introduction of gas engines at the Buffalo plant of the Lackawanna Steel Company has marked an important epoch in blast furnace practice. By eliminating boilers, and thus combining the duties of boiler and blowing engine, economies are promised amounting to 20 per cent. Through the courtesy of Henry Wehrum, formerly the general manager of the Lackawanna Steel Company, the following data on the company's gas engines have been contributed:

Blast furnace gas in gas motors is 37 per cent. higher in efficiency than that used to produce steam, and I estimate that the engines introduced at the plant of the Lackawanna Steel Company, under my administration, show an economy of fully 300 per cent. more than that of the single condensing steam blowing engines, which is equivalent to a saving of \$12.50 per horse power per year by the introduction of blast furnace gas motors. Gas engines are now installed and in operation at the Buffalo plant of the company to the extent of some 5100 horse power. Considering the fact that about two-thirds of the gases are now used for the production of power and one-third for heating the stoves, the subject is well worthy of study.

Mr. Uehling* makes a statement that for each ton of

pig iron produced per hour there will be available 800 horse-power for sale or for use in connection with the rolling mills connected with the blast furnace plant, and Mr. F. du P. Thompson, who assisted Mr. Wehrum at the Lackawanna Steel Company's plant, is of the opinion that 500 horse power per ton of pig iron produced per hour would more nearly approach practical working.

The blast furnace has always been regarded as representing a high degree of efficiency. In the direct process the heat contained in the molten iron has been saved and, doubtless, ere long the heat of the molten slag also will be utilized. But it is in the line of using waste gases that our signal economies have been scored. First, in using it under the boilers, then in using it under the stoves, then in sealing the top of the blast furnace with a double bell, then in selling the excess waste gas to the mill in the form of steam, and now, after continuously demanding more from it, we hope to receive more by the introduction of gas engines.

Although our coke consumption remains between 1750 and 2100 pounds per ton of metal produced, our daily output per furnace has jumped from 350 to 500 tons and more in a decade, and the total yearly output of pig iron, according to Mr. Swank, has grown from about 8,000,000 tons to 18,009,252 tons in 1903. This rapid increase in the production can be understood when it is known that one 500-ton furnace has been erected and produced iron within one year and one day after the pick was first driven into the ground.

In the iron world it has been proven that high wages need not mean increased cost of production. The region between the Great Lakes and the Connellsville coal field is still regarded as being a section where the most advantages are found, possessing easy access to high grade cokes, the best ores, the most skilled and ambitious labor, the greatest mechanical ingenuity and the best markets. Colorado and Alabama also hold strong positions.

While the decade has recorded the abandonment of many plants economically unfit, it has been a period of great activity in building new plants in the localities above mentioned as well as in Canada and Mexico. The tendency has been toward fewer units and larger units, toward a keener appreciation of the reduction in cost resulting from using a large output as a divisor, particularly with reference to the reduction of the cost of management and fixed charges.

A series of observations by barometer and hygrometer emphasize the disadvantages of high humidity, and have led, in a few instances where there were hot, moist engine rooms, to the supply of air from outside the building by means of especially constructed pipes. This also is a line of investigation receiving the attention of some of our foremost furnace managers.

Nickel-steel, or steel containing about 3.5 per cent. of nickel, with an elastic limit of 70,000 pounds per square inch, is now required for breech blocks and spindles in the ordnance of the United States Navy. It is also supplied for the tubes of the 5 and 6 inch rapid fire guns of the latest model, the prescribed elastic limit here being 65,000 pounds. The tube and jacket of the 16-inch gun recently completed were made of nickel-steel, since the manufacturers would not otherwise guarantee an elastic limit of 50,000 pounds in the metal. The cost of nickel-steel at present acts as a bar to its more extended use. The gain in elastic limit as compared with carbon steel is about 30 per cent.

Experiments made at Charlottenburg on the coefficient of thermal surface conductivity across the surface of separation of a solid and a fluid resulted as follows: From metal to water, at the boiling point, the resistance is equivalent to a thickness of from 1.2 to 2 cm. of iron, but is reduced by stirring by an amount about equivalent to 0.75 cm. of iron. The resistance increases as the temperature falls, reaching a maximum of 10 cm. of iron, which is reduced to 9 cm. by the process of stirring. For flow of heat from water to metal the resistance appears greater than for the reverse flow if the water is undisturbed, and about the same when the water is stirred.

* Stevens Institute Indicator, January, 1903.

The Iron Age

New York, Thursday, February 25, 1904.

DAVID WILLIAMS COMPANY,	-	-	-	-	-	-	PUBLISHERS.
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The Steel Structure at Baltimore.

After the news of the Baltimore calamity had brought a full realization of the extent of the destruction of property, a good many in the iron industry jumped at the conclusion that an enormous tonnage of steel would be required to replace the structures leveled to the ground. We did not share that view and we are still convinced that the tonnage, large as it promises to be, will not immediately have a very marked effect upon the trade at large. The special report in our issue of February 18 and the more elaborate pictorial presentation in this issue bring out facts in connection with the Baltimore fire which are far more significant to the steel industry than a mere temporary rush of work for replacement, be it as large as estimated or not. The modern steel frame building has under this latest fierce test vindicated its existence. If properly protected from the direct contact of the flames steel will withstand the effects of fire. Our report analyzes in detail the resistance of the different designs and points out in what respects weakness has developed. Suffice it to say that if the lessons taught by the Baltimore catastrophe be followed, we possess in the modern protected steel frame a structure which can be absolutely relied upon to withstand the most serious conflagration. A full realization of that fact by those connected with the building industries and by the public at large is of the utmost importance to the steel industry. It means that as time progresses the consumption of steel for building will multiply and that the requirements will not be confined to large business and manufacturing structures, but that an increasing number of minor buildings will call for steel. As we have repeatedly noted, the public at large has a rather exaggerated idea of the quantity of material which the skyscrapers call for when compared with other channels of consumption of iron and steel. But when steel becomes a more important element in the construction of minor buildings then the tonnage will increase even more rapidly than is now dreamt of.

There has probably never been an occasion which has called together a larger number of expert observers than the Baltimore fire. Some of them are even now preparing their reports for their clients and for their employers. It is to be hoped that full publicity will be given to these important documents and that a free discussion of them will follow, with the aim of bringing out clearly what precautions must be taken to perfect the fire resisting qualities of the modern steel frame structure.

Wire rods are the basis of the wire industry. The growth of the wire-trade may therefore be predicated on the statistics of the production of wire rods. In 1890 this country produced only 457,099 gross tons of rods, against 1,871,425 tons of steel rails. In 1902 the output of rods was 1,574,293 tons and of steel rails 2,941,421 tons. The increase in those 12 years in the rod output was 1,117,194 tons, and in the rail output 1,069,996 tons, but

the percentage of increase was 244 for rods and only 57 for rails. Query: When will our output of wire rods surpass our production of steel rails?

A Lean Year for Steel Rails.

We have evidently entered upon a lean year for steel rails. The mills may pick up considerably more business than any one anticipates at present, but the prediction may safely be ventured that the year 1904 will show up rather indifferently in comparison with any of the three previous years. The steel rail trade has, in fact, been very good for over five years, which is an unprecedented stretch of activity. It is necessary to go back to the great railroad building period of the '80's to find anything approaching the output of steel rails in any of the years covered in the stretch from 1898 to 1903. The greatest year of the '80's was 1887, when 12,878 miles of new track were laid, and the demand for steel rails was so heavy that the production of American mills for that year was 2,119,049 gross tons. But the output the previous year was only 1,579,395 tons, and the following year only 1,390,975 tons. The production did not reach 2,000,000 tons in any year after 1887 until 1899, although 1898 fell less than 24,000 tons short of it. In the middle '90's, when all trade was depressed and the country was in sore straits financially, the output in some years was barely 1,000,000 tons. Those were the days of pinching economy, which it is to be hoped will not soon be again experienced. The great activity in the period beginning with 1899 is shown by the following figures of annual production: 1899, 2,271,108 tons; 1900, 2,384,987 tons; 1901, 2,872,909 tons; 1902, 2,941,421 tons. The figures for 1903 have not yet been published, but they will probably run close to those for 1902. New railroad construction will be light in 1904 from present appearances. There are, of course, plenty of schemes, especially for the building of electric roads, but the rail manufacturers are not willing to take bonds in payment for their product, and capitalists are slow to take on fresh ventures. The rail mills will have to depend mainly on the demand from old roads for rails for renewals. As railroad companies have been very liberal in replacements for a long time, it is possible that the demand for this purpose may be confined within narrow limits. For this reason it is estimated in some quarters that the year's output may fall below 2,000,000 tons.

Direct Lines of Steamships.

An instructive instance of the building up of an export trade through the establishment of a direct line of steamships is given in a recent consular report. United States Consul-General Dickinson, stationed at Constantinople, Turkey, presents the facts referred to, which are of such a character that they should greatly stimulate the efforts of those who are endeavoring to build up the American merchant marine. Mr. Dickinson prefaces his report with the statement that there are few places in the world which present a less inviting prospect for American commerce than Turkey, which is on the extreme eastern border of the European commercial sphere. To enter that country, American products must be carried 6000 miles or more, while it is almost at the doorstep of the great European nations, who are our keenest competitors. With the ships of Great Britain, France, Germany, Austria and Italy controlling the carrying trade of the Mediterranean, it would appear inevitable that the manufacturers and merchants of those nations should pre-empt the Turkish markets. To the statements made by Mr. Dickinson some other points might be added to

show the slender hope of any American trade of consequence being developed in that direction. Between Turkey and America there are no racial ties and no sentimental bonds of sympathy. The two countries could hardly be more antithetic as to their form of government or the characteristics and occupations of their people. So far as religion is concerned, the efforts of American missionaries to implant branches of their faith on Turkish soil may be assumed to have prejudiced the official and dominant element in Turkish affairs against American ideas. Further, the people are conservative and take slowly to improvements in household utensils, farm implements, mechanics' tools or other forms of American ingenuity which have won trade for this country in sections of the world well served by their own highly skilled artisans. Nor are the masses of the people favored with much purchasing power, therefore possessing but limited means to gratify such desires as they may have for greater conveniences. Under these circumstances it is particularly interesting to learn what has been done in the development of trade by a direct line of vessels.

Up to 1899 all American goods destined for Constantinople or other Turkish ports were shipped to some point in England, France or Belgium, to be transferred there to a vessel bound for Turkey. Most of such transferred freight was handled by four steamship companies sailing between Liverpool and Turkish points, who maintained a fairly reasonable rate on goods bound for New York, but charged a prohibitive rate on freight from America. Early in that year a New York firm established a direct line to Constantinople with monthly sailings. Immediately the Liverpool-Constantinople steamship companies combined to drive the new line out of business, cutting the freight rate about one-third. According to Mr. Dickinson the war was continued for more than a year. During that time the American consulates at Constantinople, Smyrna and Salonika, calling ports for the new line, put forth every effort to obtain and hold business for their countrymen. The British companies then resorted to desperate means to injure the newcomers, charging a special high rate on all shipments from Turkey to British ports made by patrons of the American direct line, unless they would also give their American business to one of these companies. The fierce competition compelled the direct line to make less frequent sailings in the latter part of 1900, but the battle had been won and the monopoly of the Liverpool combination was at an end. The sharp cut in freight rates so greatly increased trade both ways between America and Turkey that other companies, not in the Liverpool combination, were induced to take advantage of the opportunity for extending their business. Italian lines transshipping at Naples and other lines transshipping at Trieste engaged in the trade, while later another direct line was started from New York to Constantinople and some ports in the Black Sea. The freight rate to Constantinople, which was fully 40 shillings, or \$9.74, per ton five years since, has been reduced to 17 shillings 6 pence, or \$4.26, per ton, and even lower rates are quoted on shipments of considerable size.

The statistics show that American exports to European Turkey have increased over thirteen-fold in the past five years. From 1893 to 1898 this trade showed a tendency to decline rather than gain, but after the establishment of the direct line of steamships a steady and rapid increase was made. "No other country," says Mr. Dickinson, "except the Philippine Islands, shows so high a percentage of increase during the last five years in the purchase of American goods." This increase, it is observed, has been almost wholly confined to the Turkish ports reached by direct service. The returns from the

other consular offices in Turkey show that there has been no substantial gain in their American trade, thus proving clearly that trade is not merely increased but actually created by facilities of transport. If providing such facilities has done so much for the cultivation of our export trade with Turkey, it can well be assumed that there are plenty of opportunities for enlarging American trade with other countries. But our goods must go there direct in American ships. As Mr. Dickinson says, "if our goods go in foreign ships we must expect obstacles and adverse discrimination."

The National Building Trades Council, composed of representatives of unions in various cities, has issued the following statement, addressed to the public:

Every building erected exclusively by union labor will be entitled to bear the union label, which can be obtained through the local Building Trades Council of your city. The union label on buildings will be a testimonial that the men who erected the building are thorough mechanics earning fair wages, and thus enabled to benefit the community as consumers. It will be the best guarantee that the building is safe, substantial and in a sanitary condition.

The "official" labels are two in number, both elliptical in shape, one being an aluminum tablet, 5 inches long, for residences, and the other a bronze tablet, 14 inches long, for business and public buildings. This is another link in the chain which the unions are attempting to forge. The union label will hardly be placed on a building unless all the materials in it are union made as well as union erected. It will be interesting to see how this new regulation will be carried out. Possibly owners may be found who are desirous of having a label of this character on their buildings. But in the present temper of the public the union label is not sought, but shunned.

CORRESPONDENCE.

The Baltimore Fire and Mr. Outerbridge's Investigations.

To the Editor: The account in your issue of even date of "The Baltimore Fire" reminds me of a letter dated February 9, 1904, from the trust officer of the Land Title & Trust Company, Philadelphia, which I intended to read during my address before the American Institute of Mining Engineers yesterday, but overlooked it. It bears upon the subject of your article as well as upon my investigations, and I think, therefore, the following extract will interest you:

"The chief engineer of the Land Title Building, who went to Baltimore to inspect the effect of the conflagration upon the Continental Trust Company's sixteen-story building, reports that while the entire inflammable contents of that building were 'roasted' and consumed, the steel framework is apparently plumb and intact. He also says that the cast iron frame work of the doors, which were set in granite, has expanded and bent to a considerable extent, and has not again contracted."

These facts are in accord with my investigations, both with respect to cast iron and steel, and afford another example of the necessity and practical value of a correct comprehension of these laws. I venture to assert that cast iron will not again be used for the frame work of this building, and it should never be so used.

ALEX. E. OUTERBRIDGE.

PHILADELPHIA, February, 18, 1904.

At a meeting of the Scotch steel makers at Glasgow on February 16 an agreement for regulating prices is said to have been concluded. All the makers in Scotland joined. The meeting agreed to raise the prices of boiler plates 5 shillings per ton; ship plates, 2 shillings and 6 pence, and iron bars, 2 shillings and 6 pence. Breaches of the agreement will be heavily penalized.

The Eastern Iron and Steel Merchants' Association.

On Friday evening, February 19, a dinner was given at the Bellevue Hotel, Philadelphia, by the Eastern Iron and Steel Merchants' Association, in which about 40 members and invited guests participated. After enjoying the good things provided for the occasion the president, Frank Samuel, in a few well chosen sentences welcomed the members and guests to this the first dinner given by the association.

The outlined purposes and objects of the association are as follows:

1. The adjustment of claims between the members of the association and their customers arising from differences in grading material, and from other causes which create disputes between the mills and the merchants, it being the object of this association to have a Board of Arbitration, meeting monthly, to which members can submit their disputes. If it is found that the members have suffered injustice and the board cannot properly adjust the differences, the matter is placed in the hands of counsel, and such methods as may be necessary are used to insure justice. It is also its purpose to endeavor to bring about a better mutual understanding and better methods of doing business, so that the mills may depend upon securing fair treatment from the members of the association, and *vice versa*. The arbitrary methods which are sometimes employed by buyers, who merely make deductions without considering the merits of the case from the seller's point of view, we trust to have done away with.

Under the charter granted by the State of Pennsylvania this association has a legal standing in the courts and through their counsel can act for any member of this association, thereby doing away with the expense that might be necessary when each member presents small claims.

If, on the other hand, any member should not act in conformity with good business methods, the same may be brought to the notice of the association, and the right to expel the erring member is given to them.

It is hoped, also by drawing a uniform contract which would be acceptable to the mills, to do away with disagreements to a certain degree, and also to establish more pleasant business relations. It is hoped that the mills will join with this association in endeavoring to raise the methods of selling scrap materials, and to deal, if possible, with people with whom they are sure of having not only pleasant relations, but honest and correct transactions.

2. It is the purpose of this association to use its influence with the railroads in order to secure fair consideration of claims arising from lost weight in transit, demurrage and other causes. The railroads assume an arbitrary stand and refuse to consider claims where they are not only legally but morally bound to protect the shippers. Small claims of this kind, which it is impossible for the individual to press, will be presented and insisted upon by this association. The losses suffered by the shippers in the last few years through the actual refusal of the railroads to consider just and legal claims have been such that it would be of material benefit to iron merchants to join it for the advantages arising from this source alone.

Other questions may arise in which this association may be useful, and it is the object to make the dealers and merchants in iron and steel materials in the East feel that it would add to their standing to become members of this association, and that the advantages accorded to them would be such that they will seek membership rather than be sought.

E. Dreifus then presented his views in the following terms: "Mr. Swank, in his well known 'History of the Manufacture of Iron and Steel in All Ages,' cites facts that evidence a knowledge of iron and steel among the Hebrews, Egyptians, in India and generally among the civilized nations among the ancients. Mr. Swank, however, has failed to cite what appears to me to be the earliest reference to a scrap pile. I quote from Joel: 'Beat your plowshares into swords and your pruning hooks into spears.' I am not prepared to argue upon the

exactness of the application of the quotation, but it appears to me that it would have been quite difficult to have reached the desired result had there not been a pretty fair sized scrap heap upon which the artisans could go to work. It may be vanity to claim any special knowledge on the point, but in view of the presence of my ancestors I may be permitted to claim a degree of personal interest in the matter. They were there. Just in what capacity I am not prepared to say; whether they were the men behind the plow I cannot answer. If they were like their descendants, they probably sold the plows and bought the scrap, and made a profit both ways. If the quotation cited is at all applicable, it is an evidence of an old line of trade for which we need not apologize. It has grown with the growth of the iron and steel industry, the entire world to-day being called upon to supply our requirements. Scrap iron is used in the manufacture of iron independent of pig iron or the steel billet. Mr. Campbell, in his well known work, says: 'The success of the steel manufacturer is not assured without an economic and steady scrap supply.' We need, therefore, have no occasion to blush for our calling. We all know of the honors conferred upon the inventors and captains of industry in iron and steel, but millionaires among us are rare. We know the inventor of the Bessemer process, but who was the first to utilize cast iron borings, at one time used to make roadway? We know Siemens, but who brought to the notice of the iron manufacturers the value of wrought iron turnings? Who first saw the value in such as annealing pots? They are unknown, and while they undoubtedly made a profit, they have added largely to the wealth of our country."

Remarks were then made by the representatives of the mills, which included Messrs. Bowman of the American Iron & Steel Company, Frank Kennedy of the Logan Iron and Steel Company, Lukens of the Alan Wood Company, Wallace of the Diamond State Steel Company, Johnson of the Tidewater Steel Company and Spackman of the Lukens Iron & Steel Company. Jones Wister and Frank Cabeen spoke from individual and independent points of view, after which a vote of thanks was unanimously tendered to E. B. Leaf and Charles A. Barnes for the admirable arrangements which they planned and carried to completion for the evening's entertainment.

The following were present at the dinner: S. B. Boude, W. Vernon Phillips, J. W. Thurston, Emanuel Dreifus, Thos. A. Yocum, Lewis Lukens, J. Barton Hoopes, F. von A. Cabeen, Frank Samuel, Jones Wister, H. P. Rees, Thos. Hobson, Frank Kennedy, J. O. Brainard, G. H. Leaf, Allan Hoffer, B. H. Lester, Silas Tomlinson, W. W. Lukens, M. Jackson Crispin, H. H. Ives, H. T. Wallace, M. L. Tyroler, Jos. G. Hitner, Gus Benjamin, W. B. Ilko, John Allen, John Caine, E. B. Leaf, Geo. S. Bowman, Wm. Brusstor, H. B. Spackman, C. A. Barnes, H. Plitt, J. L. Ginsberg and W. B. Johnson.

The French Navy authorities last fall carried out some daring gunnery experiments with the turrets of the battle ship "Suffren," to ascertain the effect due to the impact of a heavy shot. The turrets each house two guns of 12-inch caliber, the steel armor plating being 10½ inches thick. To prevent injury to the actual turret, a shield of 16-inch armor was fastened to the outside. The turret was then attacked by a 12-inch gun on the "Massena" at short range, and the effect of the two shots which were fired was carefully noted. The entire crew of the "Suffren" remained on their ship, but not in the turret in question. Some sheep were in the turret, however, and it is reported that they survived the shock without injury.

President Cassatt and others have officially denied the report that the Pennsylvania Railroad Company have rejected all the bids submitted by contractors and will undertake the work of building the New York tunnel on their own account. The feeling is general among contractors and others interested that while none of the bids as originally submitted will be accepted, arrangements will be made, or probably have been made, with the more responsible of the bidders to undertake the work under a percentage contract.

Standard Specifications for Gray Iron Castings.***Process of Manufacture.**

Unless furnace iron is specified, all gray castings are understood to be made by the cupola process.

Chemical Properties.

The sulphur contents to be as follows:

	Per cent.
Light castings.....	not over 0.08
Medium castings.....	not over 0.10
Heavy castings.....	not over 0.12

Definition.

In dividing castings into light, medium and heavy classes, the following standards have been adopted:

Castings having any section less than $\frac{1}{2}$ of an inch thick shall be known as *light castings*.

Castings in which no section is less than 2 inches thick shall be known as *heavy castings*.

Medium castings are those not included in the above definitions.

Physical Properties.

Transverse Test. The minimum breaking strength of the "Arbitration Bar" under transverse load shall be not under:

	Pounds.
Light castings.....	2,500
Medium castings.....	2,900
Heavy castings.....	3,300

In no case shall the deflection be under .10 of an inch.

Tensile Test. Where specified, this shall not run less than:

	Pounds per square inch.
Light castings.....	18,000
Medium castings.....	21,000
Heavy castings.....	24,000

The "Arbitration Bar" and Methods of Testing.

The quality of the iron going into castings under specification shall be determined by means of the "Arbitration Bar." This is a bar $1\frac{1}{4}$ inches in diameter and 15 inches long. It shall be prepared as stated further on and tested transversely. The tensile test is not recommended, but in case it is called for, the bar turned up from any of the broken pieces of the transverse test shall be used. The expense of the tensile test shall fall on the purchaser.

Two sets of two bars shall be cast from each heat, one set from the first and the other set from the last iron going into the castings. Where the heat exceeds twenty tons, an additional set of two bars shall be cast for each twenty tons or fraction thereof above this amount. In case of a change of mixture during the heat, one set of two bars shall also be cast for every mixture other than the regular one. Each set of two bars is to go into a single mold. The bars shall not be rumbled or otherwise treated, being simply brushed off before testing.

The transverse test shall be made on all the bars cast, with supports 12 inches apart, load applied at the middle, and the deflection at rupture noted. One bar of every two of each set made must fulfill the requirements to permit acceptance of the castings represented.

The bottom of the bar is 1-16 of an inch smaller in diameter than the top, to allow for draft and for the strain of pouring. The pattern shall not be rapped before withdrawing. The flask is to be rammed up with green molding sand, a little damper than usual, well mixed and put through a No. 8 sieve, with a mixture of one to twelve bituminous facing. The mold shall be rammed evenly and fairly hard, thoroughly dried and not cast until it is cold. The test bar shall not be removed from the mold until cold enough to be handled.

Speed of Testing.

The rate of application of the load shall be thirty seconds for a deflection of .10 of an inch.

Samples for Chemical Analysis.

Borings from the broken pieces of the "Arbitration Bar" shall be used for the sulphur determinations. One determination for each mold made shall be required. In case of dispute, the standards of the American Foundrymen's Association shall be used for comparison.

* Proposed by Committee B of the American Society for Testing Materials.

Finish.

Castings shall be true to pattern, free from cracks, flaws and excessive shrinkage. In other respects they shall conform to whatever points may be specially agreed upon.

Inspection.

The inspector shall have reasonable facilities afforded him by the manufacturer to satisfy him that the finished material is furnished in accordance with these specifications. All tests and inspections shall, as far as possible, be made at the place of manufacture prior to shipment.

The Carnegie Technical Schools.

At Pittsburgh employers and employees have already been called in to assist Director Hamerschlag in mapping out the plan and scope of the new Carnegie Technical Schools. Employees are to be represented entirely by organized labor. This week arrangements will be completed for the formation of a committee of 21 men, who will be a permanent Advisory Committee for the Pittsburgh metal trades to the Plan and Scope Committee of the schools. Other trade sections will be asked to appoint similar committees, and plans are being perfected now for a meeting of all labor, at which Director Hamerschlag will explain the plans for the schools. The Manufacturers' Association of Pittsburgh, the local branch of the National Foundrymen's Association and the National Metal Trades Association will name nine—three from each body—of the committee of 21 that will be appointed for the metal trades. The meeting will be held in the offices of the Manufacturers' Association, Room 902, Lewis Block, and Mr. Hamerschlag will be present. Organized labor will appoint 12 members on this committee, three each from the pattern makers, iron molders, machinists and blacksmiths. Similar committees will be appointed soon for the building trades and other sections, as it is intended to have represented on the General Advisory Committee the 62 trades to be taught in the schools.

Commissioner Best and Chief Engineer Nichols, of the Department of Bridges, New York, have submitted plans and specifications for the enlargement and reconstruction of the Manhattan terminal of the Brooklyn Bridge. The work contemplates the rearrangement of the terminal to relieve the morning and evening crush. This will require the purchase of considerable property by the city, which it is proposed to utilize by the erection of a building over the trolley and elevated railroad tracks, to be used for various city departments. The estimated cost is \$6,300,000, a large part of which would be expended in acquiring property. The building, however, would be a large structure, several stories in height. A heavy tonnage of steel would be required should the plans be adopted.

The first contract awarded any architect for the rebuilding of Baltimore has been secured by Howells & Stokes, of New York. Mr. Howells was at the fire in less than 24 hours after its outbreak, and left Baltimore on the following day with the contract for building the new Stock Exchange. He was given six days in which to complete plans for a structure for the new exchange, the price to be of no consideration. He immediately put a force at work night and day, and on Friday took the completed plans and specifications to Baltimore for inspection. This is said to be the shortest time on record for the planning of a building of such monumental character as a Stock Exchange, where price consideration is eliminated.

An outburst of socialism in the Pennsylvania anthracite regions last year caused some apprehension. In three towns in Schuylkill County the socialists secured control of the municipal offices. Last week the socialist candidates were defeated in all these towns by overwhelming majorities, as a result of the incompetence shown by the socialist officials. It is significant that all proved failures. If even one town had shown marked improvement under socialistic influences great encouragement would have been given to those who are endeavoring to break down our civil institutions.

Standard Specifications for Cast Iron Pipe and Special Castings.*

Description of Pipes.

Section 1. The pipes shall be made with hub and spigot joints, and shall accurately conform to the dimensions given in Tables Nos. 1 and 2. They shall be straight and shall be true circles in section, with their inner and outer surfaces concentric, and shall be of the specified dimensions in outside diameter. They shall be at least 12 feet in length, exclusive of socket. For pipes of each size from 4-inch to 24-inch, inclusive, there shall be two standards of outside diameter, and for pipes from 30-inch to 60-inch, inclusive, there shall be four standards of outside diameter, as shown by Table No. 2.

All pipes having the same outside diameter shall have the same inside diameter at both ends. The inside diameter of the lighter pipes of each standard outside diameter shall be gradually increased for a distance of about 6 inches from each end of the pipe so as to obtain the required standard thickness and weight for each size and class of pipe.

Pipes whose standard thickness and weight are intermediate between the classes in Table No. 2 shall be made of the same outside diameter as the next heavier class. Pipes whose standard thickness and weight are less than shown by Table No. 2 shall be made of the same outside diameter as the Class A pipes, and pipes whose thickness and weight are more than shown by Table No. 2 shall be made of the same outside diameter as the Class D pipes.

For pipes 4-inch to 12-inch, inclusive, one class of special castings shall be furnished, made from Class D pattern. Those having spigot ends shall have outside diameters of spigot ends midway between the two standards of outside diameter as shown by Table No. 2, and shall be tapered back for a distance of 6 inches. For pipes from 14-inch to 24-inch, inclusive, two classes of special castings shall be furnished, Class B special castings with Classes A and B pipes, and Class D special castings with Classes C and D pipes, the former to be stamped "AB" and the latter to be stamped "CD." For pipes 30-inch to 60-inch, inclusive, four classes of special castings shall be furnished, one for each class of pipe, and shall be stamped with the letter of the class to which they belong.

Allowable Variation in Diameter of Pipes and Sockets.

Sec. 2. Especial care shall be taken to have the sockets of the required size. The sockets and spigots will be tested by circular gauges, and no pipe will be received which is defective in joint room from any cause. The diameters of the sockets and the outside diameters of the bead ends of the pipes shall not vary from the standard dimensions by more than .06 of an inch for pipes 16 inches or less in diameter; .08 of an inch for 18-inch, 20-inch and 24-inch pipes; .10 of an inch for 30-inch, 36-inch and 42-inch pipes; .12 of an inch for 48-inch, and .15 of an inch for 54-inch and 60-inch pipes.

Allowable Variation in Thickness.

Sec. 3. For pipes whose standard thickness is less than 1 inch the thickness of metal in the body of the pipe shall not be more than .08 of an inch less than the standard thickness, and for pipes whose standard thickness is 1 inch or more, the variation shall not exceed .10 of an inch, except that for spaces not exceeding 8 inches in length in any direction, variations from the standard thickness of .02 of an inch in excess of the allowance above given shall be permitted.

For special castings of standard patterns a variation of 50 per cent. greater than allowed for straight pipe shall be permitted.

Defective Spigots May Be Cut.

Sec. 4. Defective spigot ends on pipes 12 inches or more in diameter may be cut off in a lathe and a half round wrought iron band shrunk into a groove cut in the end of the pipe. Not more than 12 per cent. of the total num-

ber of accepted pipes of each size shall be cut and banded, and no pipe shall be banded which is less than 11 feet in length, exclusive of the socket.

In case the length of a pipe differs from 12 feet, the standard weight of the pipe given in Table No. 2 shall be modified in accordance therewith.

Special Castings.

Sec. 5. All special castings shall be made in accordance with the cuts and the dimensions given in the table forming a part of these specifications.

The diameters of the sockets and the external diameters of the bead ends of the special castings shall not vary from the standard dimensions by more than .12 of an inch for castings 16 inches or less in diameter; .15 of an inch for 18-inch, 20-inch and 24-inch; .20 of an inch for 30-inch, 36-inch and 42-inch, and .24 of an inch for 48-inch, 54-inch and 60-inch. These variations apply only to special castings made from standard patterns.

The flanges on all manhole castings and manhole covers shall be faced true and smooth, and drilled to receive bolts of the sizes given in the tables. The manufacturer shall furnish and deliver all bolts for bolting on the manhole covers, the bolts to be of the sizes shown on plans and made of the best quality of mild steel, with hexagonal heads and nuts and sound, well-fitting threads.

Markings.

Sec. 6. Every pipe and special casting shall have distinctly cast upon it the initials of the maker's name. When cast especially to order, each pipe and special casting larger than 4-inch may also have cast upon it figures showing the year in which it was cast and a number signifying the order in point of time in which it was cast, the figures denoting the year being above and the number below, thus:

1901	1901	1901
1	2	3

&c., also any initials, not exceeding four, which may be required by the purchaser. The letters and figures shall be cast on the outside and shall be not less than 2 inches in length and $\frac{1}{8}$ of an inch in relief for pipes 8 inches in diameter and larger. For smaller sizes of pipes the letters may be 1 inch in length. The weight and the class letter shall be conspicuously painted in white on the inside of each pipe and special casting after the coating has become hard.

Allowable Percentage of Variation in Weight.

Sec. 7. No pipe shall be accepted the weight of which shall be less than the standard weight by more than 5 per cent. for pipes 16 inch or less in diameter, and 4 per cent. for pipes more than 16 inches in diameter, and no excess above the standard weight of more than the given percentages for the several sizes shall be paid for. The total weight to be paid for shall not exceed for each size and class of pipe received the sum of the standard weights of the same number of pieces of the given size and class by more than 2 per cent.

No special casting shall be accepted the weight of which shall be less than the standard weight by more than 10 per cent. for pipes 12 inches or less in diameter, and 8 per cent. for larger sizes, except that curves, Y pieces and breeches pipe may be 12 per cent. below the standard weight and no excess above the standard weight of more than the above percentages for the several sizes will be paid for. These variations apply only to castings made from the standard patterns.

Quality of Iron.

Sec. 8. All pipes and special castings shall be made of cast iron of good quality, and of such character as shall make the metal of the castings strong, tough and of even grain, and soft enough to satisfactorily admit of drilling and cutting. The metal shall be made without any admixture of cinder iron or other inferior metal, and shall be remelted in a cupola or air furnace.

Tests of Material.

Sec. 9. Specimen bars of the metal used, each being 26 inches long by 2 inches wide and 1 inch thick, shall be made without charge as often as the engineer may direct, and, in default of definite instructions, the contractor

* Proposed by Committee B of the International Association for Testing Materials.

shall make and test at least one bar from each heat or run of metal. The bars, when placed flatwise upon supports 24 inches apart and loaded in the center, shall for pipes 12 inches or less in diameter support a load of 1900 pounds and show a deflection of not less than 0.30 of an inch before breaking, and for pipes of sizes larger than 12 inches shall support a load of 2000 pounds and show a deflection of not less than 0.32 of an inch. The contractor shall have the right to make and break three bars from each heat or run of metal, and the test shall be based upon the average results of the three bars. Should the dimensions of the bars differ from those above given, a proper allowance therefor shall be made in the results of the tests.

Casting of Pipes.

Sec. 10. The straight pipes shall be cast in dry sand molds in a vertical position. Pipes 16 inches or less in diameter shall be cast with the hub end up or down, as specified in the proposal. Pipes 18 inches or more in diameter shall be cast with the hub end down.

The pipes shall not be stripped or taken from the pit while showing color of heat, but shall be left in the flasks for a sufficient length of time to prevent unequal contraction by subsequent exposure.

Quality of Castings.

Sec. 11. The pipes and special castings shall be smooth, free from scales, lumps, blisters, sand holes and defects of every nature which unfit them for the use for which they are intended. No plugging or filling will be allowed.

Cleaning and Inspection.

Sec. 12. All pipes and special castings shall be thoroughly cleaned and subjected to a careful hammer inspection. No casting shall be coated unless entirely clean and free from rust, and approved in these respects by the engineer immediately before being dipped.

Coating.

Sec. 13. Every pipe and special casting shall be coated inside and out with coal-tar pitch varnish. The varnish shall be made from coal tar. To this material sufficient oil shall be added to make a smooth coating, tough and tenacious when cold, and not brittle nor with any tendency to scale off.

Each casting shall be heated to a temperature of 300 degrees Fahrenheit immediately before it is dipped, and shall possess not less than this temperature at the time it is put in the vat. The ovens in which the pipes are heated shall be so arranged that all portions of the pipe shall be heated to an even temperature. Each casting shall remain in the bath at least five minutes.

The varnish shall be heated to a temperature of 300 degrees Fahrenheit (or less if the engineer shall so order), and shall be maintained at this temperature during the time the casting is immersed.

Fresh pitch and oil shall be added when necessary to keep the mixture at the proper consistency, and the vat shall be emptied of its contents and refilled with fresh pitch when deemed necessary by the engineer. After being coated the pipes shall be carefully drained of the surplus varnish. Any pipe or special casting that is to be recoated shall first be thoroughly scraped and cleaned.

Hydrostatic Test.

Sec. 14. When the coating has become hard, the straight pipes shall be subjected to a proof by hydrostatic pressure, and, if required by the engineer, they shall also be subjected to a hammer test under this pressure.

The pressures to which the different sizes and classes of pipes shall be subjected are as follows:

	20-inch diameter and larger. Pounds per square inch.	Less than 20-inch diameter. Pounds per square inch.
Class A pipe.....	150	300
Class B pipe.....	200	300
Class C pipe.....	250	300
Class D pipe.....	300	300

Weighing.

Sec. 15. The pipes and special castings shall be weighed for payment under the supervision of the engineer after the application of the coal tar pitch varnish.

If desired by the engineer, the pipes and special castings shall be weighed after their delivery, and the weights so ascertained shall be used in the final settlement, provided such weighing is done by a legalized weigh master. Bids shall be submitted and a final settlement made up on the basis of a ton of 2000 pounds.

Contractor to Furnish Men and Materials.

Sec. 16. The contractor shall provide all tools, testing machines, materials and men necessary for the required testing, inspection and weighing at the foundry of the pipes and special castings; and, should the purchaser have no inspector at the works, the contractor shall, if required by the engineer, furnish a sworn statement that all of the tests have been made as specified, this statement to contain the results of the tests upon the test bars.

Power of Engineer to Inspect.

Sec. 17. The engineer shall be at liberty at all times to inspect the material at the foundry, and the molding, casting and coating of the pipes and special castings. The forms, sizes, uniformity and conditions of all pipes and other castings herein referred to shall be subject to his inspection and approval, and he may reject, without proving, any pipe or other casting which is not in conformity with the specifications or drawings.

Inspector to Report.

Sec. 18. The inspector at the foundry shall report daily to the foundry office all pipes and special castings rejected, with the causes for rejection.

Castings to Be Delivered Sound and Perfect.

Sec. 19. All the pipes and other castings must be delivered in all respects sound and conformable to these specifications. The inspection shall not relieve the contractor of any of his obligations in this respect, and any defective pipe or other castings which may have passed the engineer at the works or elsewhere shall be at all times liable to rejection when discovered, until the final completion and adjustment of the contract; provided, however, that the contractor shall not be held liable for pipes or special castings found to be cracked after they have been accepted at the agreed point of delivery. Care shall be taken in handling the pipes not to injure the coating, and no pipes or other material of any kind shall be placed in the pipes during transportation or at any time after they receive the coating.

Definition of the Word "Engineer."

Sec. 20. Wherever the word "engineer" is used herein it shall be understood to refer to the engineer or inspector acting for the purchaser and to his properly authorized agents, limited by the particular duties intrusted to them.

The *Colliery Guardian* of London has just issued the third part of a series of analyses of British coals and coke, which is appearing in the columns of our contemporary. In collecting these analyses the object has been to classify them in districts over the coalfields of Britain. Part I, dealing with the fuels of Northumberland, Durham and Yorkshire, is at present out of print, but will shortly be reprinted. Part II comprises the districts of Scotland, Wales, Staffordshire and Somersetshire. Part III continues the Scotch, Welsh, Staffordshire and Yorkshire coals, and includes analyses of Cumberland, Cheshire and Derbyshire coals. Part IV is in a forward state of preparation.

The chief mineral industry of Trinidad is the mining of asphalt, which occurs in large deposits in the north-west parts of the island. In 1878 the quantity exported was 7848 tons. Since that date the demand for asphalt for paving material has rapidly increased, with the result that the output from the island in 1900 amounted to 158,752 tons. When carried by sailing vessels they have to avoid standing too long on one tack, for the reason that the asphalt, which is very plastic, will in a number of hours, or days, assume such a position that the surface is as nearly as may be horizontal. Then, if it is desired to go on the other tack, the asphalt is found to have "flowed" over to one side of the vessel, where it operates to give her a very decided list.

MANUFACTURING.

Iron and Steel.

The new open hearth steel plant of the Passaic Steel Company, Paterson, N. J., has been completed, and it is expected that within a few days the company will begin making steel in the new furnaces. These furnaces will double the company's output.

The Independent Rolling Mill Company, who took over the property of the Ohio Iron & Steel Specialty Company, Cuyahoga Falls, Ohio, expect to start their plant about March 1. The entire plant has been overhauled and a puddling mill with new squeezers has been added. They will manufacture iron and steel bars, light rails, channels, angles and tee irons.

The plant of the Duquesne Forge Company, at Rankin, Pa., is shut down at present and will remain closed until conditions improve. In the meantime the equipment is being put in thorough order for operations when orders and prices justify starting up.

The report that the Pittsburgh Malleable Iron Company of Pittsburgh had received some large orders for export is untrue. The orders this company have on hand at present from British customers are very small.

The Georgia Iron & Coal Company, Atlanta, Ga., have prospected a coal field immediately adjacent to their furnace, at Rising Fawn, Ga., and have developed a 5-foot seam of good coking coal underlying from 800 to 1000 acres of land. They are figuring upon opening mines on this seam and building coke ovens at the furnace. If this is done this company will be able to get all raw material for manufacturing pig iron within 2 miles of their furnace.

The Cambria Steel Company, Johnstown, Pa., have resumed operations in their Bessemer department, and have started two old fashioned puddling furnaces on special orders.

The receiver of the Susquehanna Iron & Steel Company, Columbia, Pa., is spending \$30,000 in completing the pipe mills. The machinery was contracted for some time ago.

The American Tin Plate Company will build a gas pumping station at Dundee to supply the Elwood, Ind., plant. Furnaces have been installed in the bar and hot mills, the tinning department being now the only one using natural gas as fuel.

The directory of the Washburn Wire Company, Providence, R. I., has been increased from five to seven by the election of C. R. Remington, Jr., and E. Roland Phillips to the board. Mr. Remington is the manager of the plant and Mr. Phillips is its general superintendent. The other directors are Eugene F. Phillips, Edwin A. Smith, Charles G. Washburn, Robert Winsor and Joseph Remick.

The Duncannon Iron Company, Duncannon, Pa., will start at once to rebuild the part of their plant which was recently damaged by fire. It is stated that the total loss will not foot up to more than \$15,000. The only new equipment the company will require is a 400 horse-power horizontal rolling mill engine to replace the one lost in the fire.

At the recent annual meeting of the Warwick Iron & Steel Company, Pottstown, Pa., the following directors were elected: Edgar S. Cook, William H. Sheldermine, William S. Pillig, Frederick W. Tunnell, Harry C. Francis, Jacob Rech and H. F. Bachman.

Application has been made for a receiver for the Uniform Steel Company, Rahway, N. J. The liabilities are placed at \$117,874, while the assets are not given.

The strike at the works of the New Haven Iron & Steel Company, New Haven, Conn., has been settled, and the plant, which has been shut down for eight weeks, is again in operation.

There have been a number of misleading reports in the daily press regarding the works of the Colorado Fuel & Iron Company, Pueblo, Col. The merchant mills, which were reported as about ready for operation, and which have been under construction for a long time, are very far from completion. The resumption of operations at the plant depends entirely on the coke supply, which at the present time is subject to the unsettled labor conditions in Colorado. The company expect by March 1 to start up a portion of their open hearth department, and probably at that time or a little later they expect to be in shape to blow in a blast furnace, following it with others as conditions justify.

The Weller Rolling Mill & Forge Company, Anniston, Ala., are installing their new spike mill, which was noted in these columns some months ago.

The plant of the Monongahela Iron & Steel Company, at Hays Station, near Pittsburgh, has resumed partial operations after being idle for some time.

The Alcania Company, Pittsburgh, Pa., manufacturers of tin plate, whose plant is at Avonmore, Pa., have not been operating their works for several months. The employees have become tired of being idle and have made a proposition to the management to the effect that 25 per cent. of their wages shall be set aside in a special fund. At the end of six months the books will be gone over and the regular charges for repairs, maintenance and depreciation made, to which will be added interest on the capital invested at the rate of 5 per cent. a year. If there is

then shown a loss, the deficiency will be made up from the 25 per cent. fund, and the balance of the fund turned over to the men. If there is a loss greater than the fund the men make no further contribution, and the company stand the balance of the loss. The company have accepted the proposition and the plant has resumed operations.

General Machinery.

The Howard Iron Works, Buffalo, N. Y., founders and machinists, have completed their new foundry, which they will occupy next month. The building is equipped with modern machinery, including traveling crane, elevators, &c. It is their intention to extend their machine shop, covering the space now occupied by the old foundry.

The Falk Mfg. Company, Milwaukee, Wis., have just secured by purchase 5½ acres of land adjoining their present plant in the Menominee Valley, at a cost of \$13,190. The purchase is for future enlargements of the business. The company now have in course of construction a 125-foot addition to their machinery plant, to be built of steel and concrete, and representing an investment of \$25,000. They have large contracts for railway construction work, particularly in the welding process, for which they own exclusive patents.

The Boesch Mfg. Company, Danbury, Conn., will have to increase their manufacturing capacity because of an order from a New York concern for 10,000 candy vending machines, which are slot devices designed to be attached to the backs of theatre chairs.

The American Watch Tool Company, Waltham, Mass., have acquired from the Loop-Lock Machine Company of that city the latter's plant and all the assets pertaining to the manufacture of watch tools, precision and automatic machinery and watch makers' lathes and attachments.

The Hurlbut-Rogers Company, South Sudbury, Mass., manufacturers of cutting off machines of various styles, advise us that business with them has greatly improved and that February business promises of normal amount. Their domestic and foreign orders are about equal, the foreign orders coming principally from Germany and Australia.

In these columns a few weeks ago the voluntary dissolution of the Oswego Machine Works, Oswego, N. Y., was noted, and the impression given that the company were going out of business. The company were doing a good business and had plenty of assets, the only reason for the dissolution being the desire of Nell Gray, Jr., to conduct the works as sole proprietor. The plant has been enlarged twice since its establishment in 1893 and will again be enlarged.

The Geo. O. Richardson Machinery Company, St. Joseph, Mo., have increased their capital stock from \$10,000 to \$50,000. The company will move into their new building, 92 x 130 feet, which has just been erected on the tracks of the Chicago, Rock Island & Pacific Railroad. They are jobbers and manufacturers' agents and handle engines, threshing machinery, pumps and supplies.

A rush order from the Japanese Government on the Baldwin Locomotive Works, Philadelphia, for 20 locomotives for the Fusan & Seoul Railway, in Korea, to be shipped within 30 days, has been filled well within the time limit. The extraordinary efforts put forth by the Baldwin Works to fill this and other orders have so increased the capacity of the great plant that seven locomotives are completed, ready to haul a train of cars, every full day, or one every three hours.

The Elyria Gas Engine Company, Elyria, Ohio, are in the market for vertical and horizontal boring mills. The company are a reincorporation of the Elyria Engine Company, builders of high-grade gas and gasoline engines, and will, as soon as the weather permits, begin the construction of a new factory building. They have purchased a large part of the equipment for their new building.

The American Elevator Company, 113-115 Cedar street, New York, intend to add a few tools to their equipment, including either a 40 or a 26 inch lathe and a planer. If they finally decide to have their heavy work done outside, the smaller lathe will be purchased.

Power Plant Equipment.

The Reid Boiler Works, Bellingham, Wash., whose plant was recently destroyed by fire, have not yet decided to rebuild. They have repaired the damaged machinery and have installed it in their old shop, where they will continue operations for the present.

The E. M. Dean Syndicate, Grand Rapids, Mich., have purchased the Citizens' Gas plant and Vincennes Electric Light & Power plant, Vincennes, Ind., and will spend \$50,000 in improvements.

The contract for building the Groton & Stonington, Conn., street railway, including the power station complete, has been awarded to the John B. Macafee Company of Philadelphia. The wire had previously been purchased by the company.

City Engineer Poetsch of Milwaukee, Wis., has decided to recommend the acceptance of the bid of the Allis-Chalmers Company of \$28,600 for the 325 horse-power pump for the Kinnikinnick River flushing tunnel station.

Frank Stater, consulting engineer of the New Departure Mfg. Company, Bristol, Conn., is drawing plans for a new power plant, which will be designed for three 500-kw. equipments, only one of which will be put in at the present time. Turbines will be installed, and all of the first installation except the piping and condensing outfit has been purchased.

Foundries.

The Union City Foundry Company, Union City, Pa., who are building a foundry 50 x 105 feet, machine shop, pattern shop, engine room, and an office 50 x 90 feet, have ordered all machinery and are equipping their plant with all the modern appliances for doing quick and first-class work. The company's specialty will be the Barrett steam and hot water heater, shaft hangers, journal boxes, shaft couplings and collars, but they will also do general jobbing work. The plant will be running about April 1. The officials of this concern are: F. W. Burham, president; E. Collopy, vice-president; William Warden, treasurer, and W. N. Barrett, secretary and treasurer.

At Chicago last week Ryerson D. Gates and Henry L. Wilson were appointed receivers for the American Malleable Iron Company. The company were capitalized at \$200,000 and had a plant at Chicago Highlands.

Bridges and Buildings.

The Central Architectural Iron Works have been organized at Chicago, to manufacture architectural iron work. The incorporators are E. D. Pomeroy, D. A. Anderson and W. E.

Fires.

The plant of the Breed Johnston Furniture Company, Jamestown, N. Y., was destroyed by fire February 21, causing a loss of \$50,000.

The foundry of the Root Brothers Company, Plymouth, Ohio, was recently destroyed by fire. The loss is placed at \$10,000.

A good part of the Laflin & Rand Powder Works, about a mile from Wayne, N. J., was wrecked by an explosion February 20. The damage is estimated at \$50,000.

On February 18 a fire at Lyons, N. Y., gutted the frame mill pouch factory of William Taylor, causing a loss of \$25,000 on stock and machinery.

Hardware.

The Interstate Woven Wire Fence Company have been incorporated at Indianapolis, Ind., to manufacture woven wire fences and power looms for making the fences; capital, \$25,000. Directors: Geo. W. Whittington, John A. Von Spreckleson, Arthur Von Spreckleson and Chas. J. Greeley.

The Flannery Hardware Company have been incorporated at Logansport, Ind., with \$10,000 capital, by John Flannery, Wm. E. Baker, Thos. J. Flannery and L. A. F. Flannery.

The United States Powder Company have been incorporated at Terre Haute, Ind., with \$100,000 capital, by J. Freeman, Linton, Ind.; M. L. Gould, J. J. Higgins, Clinton; N. R. Rood, Joplin, Mo., and A. G. Cummings, Terre Haute. A factory will be built in Green County, Ind.

The Flannery Bolt Company, Pittsburgh, Pa., have been incorporated with a capital stock of \$9000. J. M. Flannery is treasurer.

Miscellaneous.

The Berkshire Hills Paper Company, Adams, Mass., who are to refit the old Zylonite works for paper making, will spend about \$30,000 in changing the buildings and installing special machinery. The plans are being prepared by architects Ellsworth & Kirkpatrick, Holyoke.

The Vermont Marble Company are to erect a new mill, 100 x 300 feet, at Center Rutland, Vt., to replace the old Clement mill.

The Link-Belt Engineering Company, Philadelphia, Pa., will erect a brick pattern storage house, 40 x 96 feet, with fire proof partitions.

The recently incorporated Dahlstrom Metallic Door Company, Jamestown, N. Y., occupy the Gokey plant in that city, where they are making fire proof metal doors, castings, moldings, &c. They have most of the machinery they require for the present, but later on it is their intention to erect a new plant, and will then probably require new equipment.

The contract for the 4,000,000 cubic foot gas holder for the Providence, R. I., Gas Company, has been awarded to Bartlett, Haywood & Co., Baltimore, Md.

The Stillman & Godfrey Company, Bridgeport, Conn., have bought land on the harbor, adjacent to property already owned by them, and plan to utilize the whole for a large plant for refining pitch.

The Home Brewing Company, Indianapolis, Ind., have let the contract for a new boiler room and bottling building for \$47,000. New boilers and machinery will be installed.

The Winamac Cement Pressed Brick Company have been incorporated at Winamac, Ind., with \$20,000 capital, by Samuel A. March, Milo E. Bond, M. M. Hathaway and Chas. L. Weeks.

A meeting of 17 of the largest stockholders of the Goshen Rubber Works, Goshen, Ind., was held February 17 to consider plans for the enlargement of the plant. Henry C. Zeigler, Montpelier, Ind., is president of the company.

The Jones-Corbin Automobile Company, Philadelphia, have been chartered, with a capital stock of \$30,000. Herman L. Duhring is treasurer.

The Pacific Coast Borax Company, New York, who have to haul their raw material through many miles of desert, have purchased a tractor train, consisting of an engine and several cars, which will displace 1200 mules, at an annual saving of many thousands of dollars. For the use of the train the company are building a macadamized road 100 miles long through the shifting sands of the desert.

The Union Belt Company, Fall River, Mass., have increased their capital stock from \$48,000 to \$72,000, for the purpose of improving and enlarging their plant. No new machinery will be required.

The recent fire at the plant of the Peck-Williamson Heater Company, Wellston, Ohio, only partly destroyed the buildings, and damaged the machinery very little. They will need no new machinery, and are ready to resume operations.

The Maguire Metallic Vacuum Casket Company, Butler, Pa., have been chartered at Harrisburg, Pa., with a capital stock of \$300,000. Daniel A. Slater is treasurer.

The Johnstown Vehicle Company, Johnstown, Pa., have applied for a charter. Jacob Shank of Johnstown, Pa., is a director.

The steamer "Umbria," one of the finest freight vessels ever built on the Great Lakes, was launched at the Cleveland yard of the American Shipbuilding Company last week. The new boat is owned by W. A. Hawgood of Cleveland, and cost nearly \$300,000. She is 400 feet over all, 420 feet keel, 50 feet beam and 28 feet deep. She is designed to carry 6800 tons of ore.

The King Lubricator & Brass Supply Company, Steubenville, Ohio, have been incorporated with \$50,000 capital stock by Edward M. Fisher, John Baxter, Joseph V. Clark, Herbert Bryant and E. D. Erskine. They will manufacture lubricating devices and other brass goods.

The New England Linen Company have bought the large mill in Hopkinton, Mass., formerly owned by the Rockville Mfg. Company. The new owners will equip the plant with new machinery.

Merchants' and Manufacturers' Association of Pittsburgh.

At Pittsburgh the Merchants' and Manufacturers' Association has been organized for the purpose of placing Pittsburgh in a more important position as a trade center than it at present occupies. Officers of the new organization have been elected as follows: E. P. Lloyd, of Bindley Hardware Company, president; George A. Kelly, first vice president, and W. T. Tood, secretary and treasurer. The objects of the association are as follows:

1. Better freight and express service by the railroads in and out of Pittsburgh.
2. Better passenger service for merchants wanting to come to Pittsburgh to purchase goods.
3. Trade excursions arranged by the association at certain intervals during the year to enable members of the association to visit their trade in the surrounding territory.
4. Special rate excursions from surrounding territory to induce dealers to visit Pittsburgh to purchase goods.
5. In every way possible to boom Pittsburgh as a trade center.

A committee of six was appointed to draft a constitution and bylaws, and a nominating committee of three was appointed to nominate members for the board of directors. A third committee was appointed to look up quarters for the association. All of these committees are to report at a meeting of the association to be held in two weeks at the call of the president.

It has been discovered that a radio active gas or emanation can be obtained by drawing air over hot copper, or by bubbling it through hot or cold mercury. By repeated circulation through mercury, very considerable activity of quite a different order from that of metals as ordinarily observed can be obtained. The mercury emanation deposits radio active matter on the walls of the vessel. This deposit remains after blowing out the gas, and possesses at first, perhaps one-sixth of the activity of the latter. This induced activity falls to half value in about 20 minutes. The emanation itself decays in activity, according to an exponential law, falling to one-half value in about three days.

The Pittsburgh Coal Company.

The directors of the Pittsburgh Coal Company, Pittsburgh, met in that city last week and organized by electing the following officers: Chairman of the board and president, Francis L. Robbins; first vice-president, M. H. Taylor, Erie, Pa.; second vice-president, W. R. Woodford; third vice-president, L. R. Doty; treasurer, F. M. Wallace, Erie, Pa.; secretary, F. J. LeMoyné; assistant treasurer, W. H. Brunt; controller, J. B. L. Hornberger. The latter is a new office and will replace that of auditor, the position formerly held by Mr. Hornberger. A committee on finance was also elected. Mr. Robbins is its chairman, and the other members are Mr. Taylor, A. W. Mellon, G. T. Oliver and John A. Bell. Mr. Wallace, the newly elected treasurer, is the president of the Second National Bank of Erie. He will resign that position to assume his new one, and remain in Pittsburgh permanently.

The adjourned meeting of the stockholders will take place at Jersey City on March 2. It is for the purpose of amending the by-laws so as to authorize the issue of the \$25,000,000 bonds, recently arranged for with the Union Trust Company. At the meeting held last week not enough proxies were held to legalize the amendment, but additional proxies have been secured and the amendment will be legally passed.

It is probable that the scrip issued to pay the last dividend on the preferred stock, which is payable in a year, will be paid within six months from the time of its issue, and it is almost a certainty that the next dividend will be paid in cash. The company have acquired possession of all the coal acreage desired, and with the proceeds of the bond issue will be able to pay off all indebtedness incurred, besides securing all the working capital needed. The officials believe that the prospects for the future are exceedingly bright.

The Pittsburgh & Southern Coal & Iron Company.

The Pittsburgh & Southern Coal & Iron Company, of Pittsburgh, have been incorporated under the laws of Alabama, with \$300,000 capital. The company have acquired 545 acres of ore property on the Louisville & Nashville Railroad, 12 miles from Birmingham, and estimated to contain 40,000,000 tons of ore of from 38 to 54 per cent. of metallic iron. In addition 4000 acres of coal property have been acquired, estimated to contain 30,000,000 tons of coal, some of which is good for coking. At present \$100,000 worth of stock is being offered the public. It is the intention to increase the capital to \$1,200,000 and to erect a blast furnace. M. M. Bosworth, formerly secretary of the H. C. Frick Coke Company, is president, and Walter Kennedy general manager and engineer of the new concern.

A Skelp Mill Record.—At the plant of the Youngstown Iron Sheet & Tube Company, Youngstown, Ohio, some splendid records are being made in the skelp mill. In one day recently this mill turned out 780,000 pounds—389,000 on one turn and 391,000 pounds on another. On the night turn of February 17 this skelp mill turned out 432,668 pounds of 7½ inch skelp. The entire plant is now in full operation, the output being puddled iron sheets and wrought iron pipe.

A recently invented and patented cattle guard, which has been tested on the Texas & Pacific Railroad, has been found to be very effective. The guard is a simple system of small wheels, about 4 inches in diameter, and ½ inch thick, mounted on many axles and bound together by straps of iron. Cattle attempting to cross this arrangement find that they are unable to obtain a footing and turn back. It was found that after an attempt had once been made by an animal to cross it, it was impossible to drive the animal over the guard by any means.

The office of the Mahoning & Shenango Car Service Company, at Youngstown, Ohio, will be abandoned and moved to Pittsburgh. P. A. Lynn has been selected as the head of the Service Association for these two points, and the Pittsburgh and Youngstown offices will be united with headquarters in the former city.

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The Iron and Metal Trades

Negotiations between the Lake Ore interests are expected to come to a head at the meeting to be held tomorrow. They have been taking a turn during the last week which is more favorable to those who have been resisting a radical cut in prices. At one time it looked as though there would be an open market. One point which has entered the discussion of allotments is that the tonnage representing export shipments of steel and finished products be specially dealt with.

Some of the Lake Ore interests take the ground that the merchant furnaces must be backed up in their struggle with their competitors in other districts and that this can only be done by helping them to reduce costs. Against that course it is urged that the furnaces would promptly give away what saving they secured.

The Foundry Iron markets are perceptibly weakening in all the leading distributing markets. In some instances metal is made and forced on the market in order to convert into money Ore which had been contracted for last year, and which must be paid for. But in the North the struggle is chiefly between the older companies and the new comers. Thus, at Cleveland and Detroit, the new furnaces are apparently determined to take the local market, while older furnaces from outside districts are fighting to hold what they long controlled. The result is that \$12 for No. 2 Foundry has been reached there, while at Chicago the market for local Foundry has declined to \$13.

A number of the Southern furnaces are drifting back very rapidly to the \$9 basis for No. 2 Birmingham, which may become attractive to large buyers, because it is well known that there the line is approached which will cause blowing out. One feature deserves consideration when dealing with the question of the supply of Foundry Iron from the South, and that is that the Ensley Steel works of the Tennessee Company will draw from 800 to 1000 tons of Pig Iron per day and thus lessen the quantity available for the open market considerably. It is estimated that the company have orders aggregating 60,000 tons of Rails on their books.

Reports have been current that some large sales of Northern Iron have been made at tidewater at about \$13 at furnace for the second half of the year.

There is little that is new in the Rail situation. Two rumors are pronounced untrue—that the Harriman interests had purchased 15,000 tons of Foreign Rails for Pacific coast delivery and that the Pennsylvania Steel Company had given an option for 80,000 tons additional of Steel Rails to the Canadian Pacific. It is stated that the total amount of orders taken thus far for 1904 delivery by the mills foots up to 1,300,000 tons. Of this, of course, some tonnage has now been rolled.

Few important orders have been placed lately for Structural Shapes, but the outlook is regarded as more encouraging, both for buildings and for bridges. A leading interest has had inquiries for bridge work from railroads which until recently were not expected to place any work this year. One of these was for 6000 tons and the other for \$500,000 of work.

A little encouragement has come to the Plate trade by the placing of some orders by car builders and by ship builders, but it will take a good deal of additional business to make the mills even fairly comfortable. In the Sheet trade, notably in Chicago, some irregularities are reported, there being independent mills which do not co-operate with the other makers.

The Bar trade has been getting into better condition. The Rivet makers have failed in their efforts to reach an understanding and there is demoralization, with some low prices.

The Scrap Iron trade has taken a turn for the better, and prices are advancing East and West.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

FIG IRON:	Feb. 24, Feb. 17, Jan. 27, Feb. 25, 1904. 1904. 1904. 1903.			
Foundry Pig No. 2, Standard, Philadelphia	\$14.50	\$14.50	\$14.50	\$22.25
Foundry Pig No. 2, Southern, Cincinnati	11.75	12.25	12.50	21.75
Foundry Pig No. 2, Local, Chicago	13.00	13.50	14.00	23.00
Bessemer Pig, Pittsburgh	13.60	13.60	13.85	21.50
Gray Forge, Pittsburgh	12.75	12.75	12.75	20.75
Lake Superior Charcoal, Chicago	15.75	15.75	16.75	26.50

BILLETS, RAILS, &c.:

Steel Billets, Pittsburgh	23.00	23.00	23.00	30.00
Steel Billets, Philadelphia	24.00	24.50	24.50	27.50
Steel Billets, Chicago	24.00	24.00	24.00	30.75
Wire Rods, Pittsburgh	30.00	30.00	30.00	36.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL:

O. Steel Rails, Chicago	11.50	11.50	10.50	18.00
O. Steel Rails, Philadelphia	13.50	13.50	12.50	20.75
O. Iron Rails, Chicago	17.00	16.50	15.00	24.00
O. Iron Rails, Philadelphia	15.00	15.00	15.50	24.50
O. Car Wheels, Chicago	14.50	14.50	13.50	24.00
O. Car Wheels, Philadelphia	13.00	13.00	13.00	24.50
Heavy Steel Scrap, Pittsburgh	13.75	13.75	13.00	21.50
Heavy Steel Scrap, Chicago	11.50	11.00	10.50	18.50

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia	1.40	1.35	1.35	1.93½
Common Iron Bars, Chicago	1.40	1.40	1.40	1.85
Common Iron Bars, Pittsburgh	1.34½	1.34½	1.29½	1.80
Steel Bars, Tidewater	1.44½	1.44½	1.44½	1.75
Steel Bars, Pittsburgh	1.30	1.30	1.30	1.60
Tank Plates, Tidewater	1.74½	1.74½	1.74½	2.00
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.60
Beams, Tidewater	1.74½	1.74½	1.74½	1.75
Beams, Pittsburgh	1.60	1.60	1.60	1.60
Angles, Tidewater	1.74½	1.74½	1.74½	1.75
Angles, Pittsburgh	1.60	1.60	1.60	1.60
Skelp, Grooved Iron, Pittsburgh	1.45	1.45	1.40	1.95
Skelp, Sheared Iron, Pittsburgh	1.50	1.50	1.45	2.05
Sheets, No. 27, Pittsburgh	2.20	2.20	2.15	2.60
Barb Wire, f.o.b. Pittsburgh	2.50	2.50	2.50	2.60
Wire Nails, f.o.b. Pittsburgh	1.90	1.90	1.90	2.00
Cut Nails, f.o.b. Pittsburgh	1.70	1.70	1.70	2.10

METALS:

Copper, New York	12.50	12.50	12.62½	13.00½
Spelter, St. Louis	4.82½	4.75	4.70	4.87½
Lead, New York	4.40	4.40	4.60	4.10
Lead, St. Louis	4.35	4.32½	4.45	3.97½
Tin, New York	28.10	28.37½	28.25	29.50
Antimony, Hallett, New York	7.00	7.00	6.75	6.87½
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York	3.64	3.64	3.64	3.79

Chicago.

FISHER BUILDING, February 24, 1904.—(By Telegraph.)

Pig Iron has had another sinking spell, Northern being quoted at \$13 to \$13.50, Chicago, for No. 2 grade. Buying is comparatively active in Iron, or, at any rate, more so than it has been any time this year. Nothing startling has developed in either Iron or Steel Bars, though the tone is firmer in both. Structurals have experienced a quiet week, but men concerned in the sale of these materials profess to be highly encouraged by the outlook for the coming spring and summer. The demand for Plates is not what it should be for the general trade, though some nice orders have been placed, or soon will be by car builders who secured orders for cars as follows: The Pullman Palace Car Company, 1000 cars from the D., L. & W.; American Car & Foundry Company, 1470 cars from the Queen & Crescent; Mt. Vernon Car Company, 725 cars from the same road; the Southern Car Company, 200 cars, also from the Queen & Crescent. These car orders will also stimulate business also in Bars, Bolts, Nuts, Axles, Wheels and other lines. The Sheet situation is a puzzling one, with reductions in prices of from \$1 to \$2 per ton for some gauges by certain mills. A feeling exists that the endeavor on the part of the independent mills to adopt a uniform schedule, which should conform with that of the American Sheet & Tin Plate Company will prove successful, owing to the fact that important mills are not included in the agreement. Cast Iron Pipe is weaker in price and rather slow in demand in the West. Merchant Pipe is active, with a disposition on the part of producers to adhere to agreed prices. This cannot be said of Boiler Tubes, on which the onslaught of independents is tending to disorganize prices, though no change has been announced by the leading producer and none is expected. Merchant Steel has been quiet, compared

with what it should be at this season of the year. Nothing of importance has developed in the Rail trade. Old Materials have again been advanced in price, probably half the items on the list being 50c. higher than they were last week. Heavy snowfalls have assisted the railroads in maintaining and periodically advancing prices. But it is in the Wire and Nail industries that the greatest activity is manifested, with practically every mill working full time.

Pig Iron.—Northern Iron has lost 25c. to 50c. from the low price of last week, and is now being offered to large buyers in round lots from Chicago or Milwaukee on the basis of \$13 per ton, delivered to consumers' track, for No. 2 Foundry. This is a new low record in Northern Iron for this market. The average buyer, however, cannot do better than \$13.25 for lots of one or several cars. Southern Iron is still nominally held at \$9.50, Birmingham, although furnaces nearer to Chicago than Birmingham are giving buyers here the benefit of the freight saving, amounting to 25c. per ton. This would make the Chicago price on No. 2 from such furnaces \$13.10, or 25c. less than quoted last week. The same reduction would apply to No. 3, but does not seem to extend to lower grades. Business has been more active than for some weeks, the Pig Iron interests here booking a great number of small orders during the last week, besides two or three 5000-ton lots. More buying than usual has been done by foundrymen in the Northwest, and this has led to the sale of a large tonnage of Lake Superior Charcoal Iron, which finds its natural outlet at Duluth, St. Paul, Minneapolis and other points where freight costs prohibit the competition of either Southern or Northern Coke Irons. Railroads continue to give wretchedly inefficient service, and buyers are frequently taught the lesson of the danger of delaying too long before placing their business. We quote as follows:

Lake Superior Charcoal.....	\$15.75 to \$16.00
Northern Coke Foundry, No. 1.....	13.50 to 14.00
Northern Coke Foundry, No. 2.....	13.00 to 13.50
Northern Coke Foundry, No. 3.....	12.50 to 13.00
Northern Scotch, No. 1.....	14.50 to 14.75
Ohio Strong Softeners, No. 1.....	14.80 to 15.30
Ohio Strong Softeners, No. 2.....	14.30 to 14.80
Southern Silvery, according to Silicon.....	14.85 to 15.85
Southern Coke, No. 1.....	13.60 to 13.85
Southern Coke, No. 2.....	13.10 to 13.35
Southern Coke, No. 3.....	12.60 to 12.85
Southern Coke, No. 4.....	12.35 to 12.60
Southern Coke, No. 1 Soft.....	13.60 to 13.85
Southern Coke, No. 2 Soft.....	13.10 to 13.35
Foundry Forge.....	12.35 to 12.60
Southern Gray Forge.....	12.10 to 12.35
Southern Mottled.....	12.10 to 12.35
Alabama and Georgia Car Wheel.....	19.85
Malleable Bessemer.....	14.50 to 15.00
Standard Bessemer.....	15.80 to 16.30
Jackson County and Kentucky Silvery, 6 to 10 per cent. Silicon.....	17.05 to 18.55
Basic Southern.....	13.60 to 13.85

Bars.—Bar Iron continues to manifest considerable strength, and the price of 1.40c., base, half extras, is now made only in large lots, the small buyer being forced to pay 1.45c. if he wishes prompt shipment of assorted sizes. Less than carload lots are sold at \$1 per ton above car lots. Specifications are coming in satisfactorily to the producers, particularly from Agricultural Implement manufacturers. The statement is made here by persons who claim to have inside information that at the recent meeting of the Bar Steel Association the proposition to advance prices \$1 per ton was defeated by only one vote. This is looked upon by many men experienced in forecasting trade events as an indication that an advance in Bar Steel is now in a fair way. Specifications on Steel Bars are even more active than those on Iron, and both Agricultural Implement makers and car builders are in evidence. From store Iron Bars are being sold at 1.60c. to 1.75c., full extras, and Steel Bars at 1.60c. to 1.75c., half extras, the lower price in each case being only for business that is exceptionally desirable, and is only quoted to large customers who buy extensively from store. Steel Hoops from store are still offered at 2.10c. to 2.20c. rates, full extras.

Structural Material.—No large buildings have been placed within a week, although a number of them aggregating nearly 10,000 tons, in Chicago, are nearing the stage when contracts will be placed. Meanwhile the producers and mill agents are picking up a fair business in small orders. Orders for about 3500 freight cars, recently placed, will help this market. We quote: I-Beams and Channels up to and including 15 inches and Angles 3 inches on one leg and larger, 1.76½c., Chicago; Tees, \$1 per ton extra. Store prices on Structural range from 1.95c. to 2c., cut to lengths of 5 feet and over, with occasional lots placed at 1.90c. to meet competition.

Sheets.—The endeavor on the part of the independent producers of Sheet Steel to establish and maintain a schedule of prices that should conform to those of the American Sheet & Tin Plate Company has not met with complete success, as there are still several important independent producers who are not in line with that agreement. It is understood in this market that the attitude of even the leading producers is one of naming prices that will get the business, regardless of

any schedule. One sale is reported of a couple of cars of No. 16 gauge Sheets at 1.87½c., Chicago, which is very much lower than the prevailing market, the purchase having been made by one of the largest users of Sheets. The price was quoted in order to prevent an independent mill from getting a foothold with that firm. The wide difference of \$6 per ton between No. 18 and No. 29, quoted in our last two issues, is reduced to \$4 per ton in this week's prices. On the heavy gauges also there is a tendency to reduce prices, with a steadier market on the middle gauges. We quote as follows, for one-pass Cold Rolled Blue Annealed in the heavier gauges and one-pass Cold Rolled Box Annealed in the lighter gauges, carload lots, base sizes, f.o.b. Chicago: Nos. 9 and 10, 1.91½c.; Nos. 11 and 12, 1.96½c.; Nos. 13 and 14, 2.01½c.; Nos. 15 to 17, 2.11½c.; Nos. 18 to 21, 2.16½c.; Nos. 22 to 24, 2.21½c.; Nos. 25 and 26, 2.26½c.; No. 27, 2.31½c.; No. 28, 2.41½c.; No. 29, 2.61½c.; No. 30, 2.71½c. An effort is being made on the part of mills to charge 10c. extra per 100 lbs. for less than carload lots, instead of 5c. as formerly. But this 10c. is added to the delivered price, instead of the mill price, the mill absorbing the excess cost of less than carload shipments. No changes are noted in prices of Sheets from store, which are as follows: Nos. 8 and 10, 2.15c. to 2.20c.; No. 12, 2.20c. to 2.25c.; No. 14, 2.30c. to 2.35c.; No. 16, 2.40c. to 2.45c.; Nos. 18 and 20, 2.50c. to 2.55c.; Nos. 22 and 24, 2.55c. to 2.60c.; No. 26, 2.65c. to 2.70c.; No. 27, 2.75c. to 2.80c.; No. 28, 2.80c. to 2.85c.; No. 29, 2.95c. to 3c.; No. 30, 3.10c. to 3.15c. Galvanized Sheets are still being quoted on the basis of 80 and 2½ to 80 and 5 per cent. discount, the net price being about as follows: Nos. 16 and 17, 2.51½c.; Nos. 18 to 21, 2.66½c.; Nos. 22 to 24, 2.81½c.; Nos. 25 and 26, 3.01½c.; No. 27, 3.21½c.; No. 28, 3.45½c.; No. 29, 3.81½c.; No. 30, 4.21½c. These prices are about \$1 per ton less than the 80 and 2½ discount on which the agreed prices were approximately based. Store prices on galvanized are 75 and 7½ to 75 and 10 per cent. discount.

Plates.—The Plate business is receiving a new impetus from the car orders recently placed, as follows: Delaware, Lackawanna & Western, 1000 freight cars to the Pullman Palace Car Company; Queen & Crescent, a total of 2400 cars, of which 1475 go to the American Car & Foundry Company, 725 to the Mt. Vernon Car Company and 200 to the Southern Car & Foundry Company. The construction of these cars will consume a large tonnage of Steel Plates, as Steel Bolsters are specified. Trade on Plates among boiler shops is only fair, and the business in general is not up to last year's standard by any means. Prices are being held firmly on the basis of 1.60c., Pittsburgh, for ¼-inch and heavier for all gauges, including No. 9 and heavier. On lighter gauges concessions of several dollars per ton are being made for cars of the light gauges only, but particularly for mixed cars where concessions on the light gauges will help to close sales for the heavier ones. We quote: Tank Steel, ¼-inch and heavier, 1.76½c. to 1.81½c.; Flange, 1.86½c. to 1.91½c.; Marine, 1.96½c. to 2.01½c.; Universal Mill Plates, 1.76½c. to 1.81½c.; 3-16 and No. 8, Tank quality, 1.81½c. to 1.86½c.; No. 10, 1.76½c. to 1.81½c.; No. 12, 1.71½c. to 1.76½c. From store Plates are selling at 2c. for Tank quality, ¼-inch and heavier; 2.10c. for 3-16; 2.15c. for No. 8; 2.20c. for No. 10, with 25c. per 100 lbs. for Flange quality.

Rivets.—All efforts to bring together Rivet manufacturers on a working basis have failed, and this market is in a badly demoralized condition. Formerly there was an extra charge of 10c. per 100 lbs. for Cone-Head Open Hearth Boiler Rivets over Bessemer Structural Rivets, but this extra has long since gone by the board and Boiler and Structural Rivets are offered at the same price. The Rivet card quotes ¾-inch and heavier as being the base size, with an extra of 15c. per 100 lbs. for ½-inch; but on any large inquiry the ½-inch Rivet is now offered by most of the producers at the same price as the ¾-inch and larger. There is supposed also to be a differential of 15c. per 100 lbs. between the ½-inch and the ¾-inch Rivet, but this has been reduced to 10c. per 100 lbs. by nearly all producers on large inquiries. Rivets are being offered to leading boiler manufacturers at \$1.70 per 100 lbs., Pittsburgh, or lower, and at this price some of the best makes of Open Hearth Boiler Rivets on the market can be obtained.

Boiler Tubes.—While the leading producer continues to quote the discounts named below on Boiler Tubes, no buyer of any consequence takes these discounts seriously. For instance, 55 per cent. is regularly quoted by independents for Charcoal Iron Tubes, delivered Chicago, and it is said that discounts on Lap Welded Steel Tubes very nearly approach 70 per cent., delivered Chicago, in carload lots. The discounts named below, while nominally for carload lots, are frequently named on less than carload lot basis, and an extra 5 per cent. discount is given for straight carloads. These price reductions are usually made by independent mills, and are naturally met by the leading producer when necessary to prevent the loss of a good customer. The official discounts for carload lots, f.o.b., Chicago, named by the leading producer as described above are as follows:

	Steel.	Iron.	Seamless steel.
1 to 1 1/4 inches.....	42.35	38.85	53.35
1 1/4 to 2 1/4 inches.....	54.85	37.35	40.35
2 1/4 inches.....	57.45	42.35	40.35
2 1/4 to 5 inches.....	63.35	49.85	{ up to 4 in.
6 to 13 inches.....	54.85	37.35	{ 48.35

Store prices on Boiler Tubes remain unchanged, as follows, for delivery from Chicago warehouse, in any quantity:

	Steel.	Iron.	Seamless steel.
1 to 1 1/4 inches.....	40	35	37 1/2
1 1/4 to 2 1/4 inches.....	50	32 1/2	35
2 1/4 to 5 inches.....	60	45	45
6 inches and larger.....	50	32 1/2	..

Cast Iron Pipe.—No orders of any consequence have been placed and no very large tonnages are now in the air. We reduce our last week's quotations \$1 per ton, making 4-inch Water Pipe, \$26; 6 to 12 inch, \$25; larger than 12-inch, \$24, with \$1 per ton extra for Gas Pipe.

Billets.—No change in prices has been made by the Billet pool, and members of the pool are understood to be adhering strictly to the association prices of \$23 and \$24 per ton, Chicago, for Open Hearth or Bessemer Billets for any purpose. However, buyers insist that they can secure Open Hearth Forging Billets for less than this price from certain independent producers.

Merchant Pipe.—Official discounts remain unchanged and a large business is reported. In fact, both the leading producer and independents state that their mills are running to full capacity, and that the demand is exceptionally active. We quote:

	Steel Pipe.—		Guar. Wr'ght Iron.—	
	Black.	Galv.	Black.	Galv.
1/4 to 3/4 inch.....	67.35	57.35	64.35	54.35
3/4 to 1 inch.....	70.35	60.35	67.35	57.35
1 to 2 inches.....	74.35	64.35	71.35	61.35
2 to 6 inches.....	69.35	59.35	66.35	56.35
6 to 12 inches.....	69.35	59.35	66.35	56.35
Less than carloads, 12 1/2 per cent. advance.				

Merchant Steel.—Only a fair number of specifications are being received on Merchant Steel, and it is evident that agricultural implement concerns are doing little more than to keep pace with their current requirements. The prices on Shafting have been reaffirmed, leaving the quotations of last week unchanged, as follows: Open Hearth Spring Steel to the general trade, 2c. to 2.25c.; Smooth Finished Machinery Steel, 1.71 1/2c. to 1.81 1/2c.; Smooth Finished Tire, 1.66 1/2c. to 1.76 1/2c.; Sleigh Shoe, 1.51 1/2c. to 1.61 1/2c.; Cutter Shoe, 2.25c. to 2.35c.; Toe Calk Steel, 2.01 1/2c. to 2.11 1/2c.; Crucible Tool Steel, 6 1/2c. to 8c.; Special Tool Steel, 12c. up; Shafting at 52 per cent. in car lots and 47 per cent. in less than car lots.

Rails and Track Supplies.—No sales of any magnitude are reported for the week, and as far as can be learned no large orders are immediately on the way. A fairly good pick-up buying is evident and a tendency toward specifying a little more liberally on contracts is beginning to make itself felt. We quote \$28 per ton, Chicago, for Standard Section Rails, in large lots, and \$24.50 to \$26 for Light Section Rails, f.o.b. Chicago or Milwaukee. Track Supplies are quoted nominally at 1.40c. to 1.50c.; Spikes at 1.70c. to 1.80c., base; Track Bolts, 2.40c. to 2.45c., base, with Square Nuts, and 15c. extra for Hexagon Nuts, all f.o.b. Chicago or Joliet.

Old Materials.—Prices continue to advance 50c. at a time in spite of the fact that Pig Iron is growing weaker and weaker. The 5000-ton lot placed on the market last week by the Santa Fé road has been sold to various parties, dealers taking the majority of the tonnage. The C., B. & Q. is out with a list aggregating about 2500 tons, and indications are that that too will be taken up readily by dealers and consumers. Heavy snowfalls throughout the West have assisted the railroads in holding up the prices on their Scrap. The following list indicates advances of 50c. per ton on Iron Rails, Short Steel Rails, Heavy Melting Steel Scrap, Mixed Steel, Iron and Steel Car Axles, Railroad Wrought, Shafting, Dealers' Forge, Wrought Pipe, Iron and Steel Axle Turnings, Machine Shop Turnings, Cast and Mixed Borings, Cut Boilers, Heavy Cast Scrap and Railroad Malleable. We quote as follows per gross ton, Chicago:

Old Iron Rails.....	\$17.00 to \$17.50
Old Steel Rails, 4 feet and over.....	13.25 to 13.75
Old Steel Rails, less than 4 feet.....	11.50 to 12.50
Heavy Relaying Rails, subject to inspection.....	23.00 to 24.00
Heavy Relaying Rails, for side tracks.....	18.00 to 20.00
Old Car Wheels.....	14.50 to 14.75
Heavy Melting Steel Scrap.....	11.50 to 12.00
Mixed Steel.....	9.50 to 10.50

The following quotations are per net ton:

Iron Fish Plates.....	\$13.50 to \$14.00
Iron Car Axles.....	17.00 to 17.25
Steel Car Axles.....	14.50 to 15.00
No. 1 Railroad Wrought.....	13.00 to 14.00
No. 2 Railroad Wrought.....	12.00 to 12.50
Shafting.....	13.50 to 14.00
No. 1 Dealers' Forge.....	10.00 to 10.50
No. 1 Bushing and Wrought Pipe.....	8.75 to 9.25
Iron Axle Turnings.....	8.50 to 9.00
Soft Steel Axle Turnings.....	8.50 to 9.00
Machine Shop Turnings.....	7.50 to 8.00
Cast Borings.....	4.50 to 5.00

Mixed Borings, &c.....	4.50 to 5.00
No. 1 Boilers, cut.....	9.00 to 9.50
Heavy Cast Scrap.....	12.00 to 12.50
Stove Plate and Light Cast Scrap.....	9.50 to 10.00
Railroad Malleable.....	10.00 to 10.50
Agricultural Malleable.....	9.50 to 10.00

Metals.—This week's report is remarkable for the fact that for the first time in months no changes in prices are noted as compared with the week previous, Casting Copper being held at 12 1/2c. and Lake at 12 1/4c. Pig Tin is quoted at 29 1/4c. to 30c. Pig Lead is steady at 4.40c. in 50-ton lots, 4.45c. in car lots, and 4.60c. to 4.75c. in ton lots or less. Spelter is firm at 4.85c. in car lots and 5.10c. in less than car lots. Sheet Zinc is selling at 5.65c. per lb. for car lots of 600-lb. casks, with 20c. advance for less than car lots. Old Metals are steady at previous prices. We quote: Copper Wire and Heavy, 11 1/2c.; Copper Bottoms, 10 1/2c.; Copper Clips, 10 1/2c.; Red Brass, 10 1/2c.; Red Brass Borings, 8 1/2c.; Yellow Brass, heavy, 8 1/2c.; Yellow Brass Borings, 6 1/2c.; Light Brass, 6c.; Heavy Lead, 4.25c.; Tea Lead, 3.85c.; Zinc, 3 3/4c.; Block Tin Pipe, 24c.; Pewter, No. 1, 19c.

Tin Plate.—Specifications on contracts and new orders are more liberal than they have been for a long time. Orders for from 1000 to 5000 boxes are not uncommon. It is reported here that both the leading producer and large independent mills are running to their full capacity, the latter on night and day turns. We quote \$3.64, Chicago, for 100-lb. box of 14 x 20 prime Bessemer Coke Tin in car lots.

Coke.—It may be said that the ruling price of 72-hour Connellsville Foundry Coke, on track, Chicago, is \$4.60 to \$4.75 per ton. Good Cokes from other regions are being offered at 15c. to 25c. lower than these prices. A disturbing element in the market is the great quantity of what is known as Demurrage Coke, which is offered at a sacrifice by firms who are compelled to find new customers, after it arrives at Chicago, rather than pay the demurrage charge of the railroads, and are willing to make great concessions to move the stuff. A trainload of this description from West Virginia is now on sale here at \$4.40, Chicago, which is equivalent to \$1.75 at the ovens. The cut in freight tariff announced by the L. & N. February 10, amounting to 40c. per ton, was short lived, as it was in effect only one day, pressure being brought to bear upon that road to reinstate the old rate.

Philadelphia.

FORREST BUILDING, February 23, 1904.

The Iron and Steel markets are in a condition which it is impossible to define satisfactorily. All kinds of complications exist, and as there is no means of knowing how they will be adjusted, everything is in confusion. The war in the East does not touch us directly, but the possibility of it doing so is a factor that cannot be ignored. It may not involve direct action by this country, but its interests financially and commercially are world wide; so that some of the war influences are bound to be felt. At home we have the ever recurring question of wages. At the present time the soft coal and the coke workers are somewhat of a menace, and until the crisis is passed it is hardly possible to say much in regard to the Iron markets. Then there is to be considered the possible effects of a hard winter, which is still an unknown quantity. The destruction and damage to railways and to industrial plants aggregate many millions of dollars, apart from the \$100,000,000 or more by the recent great fire. From one point of view all these things mean more business, as the work of restoration and rebuilding will be imperative. But if destruction means more business, without corresponding drawbacks, the greater the destruction the greater the prosperity, which is an obvious inconsistency. Conditions are such that it is impossible to form any very distinct ideas in regard to the final outcome; so that the only alternative will be to wait for developments before deciding whether the result of these various influences will be for the betterment of business or the reverse. The past few days have shown a continuance of the conditions noted in our last report, an increasing demand for finished products, with firm and advancing prices, while Pig Iron is unsettled and inclined to work lower. The entire situation may be defined as unsettled, with probabilities favoring further improvement in finished products, but great uncertainty in regard to primary materials.

Pig Iron.—The demand for Foundry grades has not improved, although Mill and Basic Irons are in very great demand at full quotations. The situation is a very peculiar one, however, as in some respects it looks like decidedly lower prices, while in others an entirely different appearance is presented. The weak spot appears to be in the South, and while there is a possibility of things being straightened out, there is but little prospect of it at the present time. The nominal price for No. 2 X Foundry is \$10, f.o.b. furnace, an open price is \$9.50, while the actual rate is said to be nearer \$9. There is little or no business doing, however; so that

the question of price is of no great importance. Northern Irons are steady, with \$15 nominal for No. 2 X, but the bulk of the sales was at \$14.75 down to \$14.50, delivered in buyers' yards. The feeling as regards Northern Irons is strengthened by the fact that stocks are light, and that deliveries are required with great promptness, showing that the available supply of desirable Irons in this district is by no means as large as indicated by furnace reports. Moreover, the demand from the Steel mills is rather urgent; so that, on the whole, sellers are not disposed to accept business unless at about the prices above named. There is also a little nervousness in regard to the supply of Coke. The railways have been badly crippled by the severe weather, and now there is the possibility of a strike in the Soft Coal regions, and in view of these contingencies makers of Pig Iron are in no mood to concede anything from prices, which are already down to actual cost, or less. Prices, therefore, range about as follows for deliveries in buyers' yards, Philadelphia, or nearby points:

No. 1 X Foundry.....	\$15.50 to \$16.00
No. 2 X Foundry.....	14.50 to 15.00
No. 2 Plain.....	14.00 to 14.25
Southern No. 2, rail shipment.....	13.75 to 14.00
Southern No. 2, on dock.....	13.25 to 13.50
Standard Gray Forge.....	13.50 to 14.00
Ordinary Gray Forge.....	12.75 to 13.00
Basic.....	13.75 to 14.00

Steel.—There is a good demand and prices are steady at from \$24 to \$25, according to delivery, quantity and specifications.

Plates.—The demand is improving and prospects for its continuance are better than they have been for a long time past. Shipyards are taking on a considerable amount of work, besides which the smaller interests are sending in a very encouraging amount of business. There is no pressure for immediate shipments beyond what can be readily met, but for more extended periods the outlook is materially better. Prices as last quoted—viz:

	Carloads.	Part carloads.
	Cents.	Cents.
Tank Steel, ¼ inch and heavier.....	1.73½	1.78½
Tank Steel, 3-16 inch.....	1.83½	1.88½
Tank Steel, Nos. 7 and 8, B. W. G.....	1.88½	1.93½
Tank Steel, Nos. 9 and 10, B. W. G.....	1.98½	2.03½
Flange or Boiler Steel.....	1.83½	1.88½
Commercial Fire Box Steel.....	1.93½	1.98½
Still Bottom Steel.....	2.03½	2.08½
Locomotive Fire Box Steel.....	2.23½	2.28½
Plates over 100 to 110 inches.....	.05 per lb. extra	
Plates over 110 to 115 inches.....	.10	
Plates over 115 to 120 inches.....	.15	
Plates over 120 to 125 inches.....	.25	
Plates over 125 to 130 inches.....	.50	
Plates over 130 inches.....	1.00	
All sketches (excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches).....	.10	
Complete Circles.....	.20	
Shell grade of Steel abandoned.		

Structural Material.—At the moment business is a little quiet, but a very considerable amount of work is coming in sight, so that prospects are regarded as more encouraging than seemed probable a little while back. Some difficulties are being met with on account of storms and floods, and it may require a few weeks to get into good working shape, but the outlook is quite favorable. Prices unchanged, as follows: Beams, Channels and Angles, 1.73½c. to 1.85c., according to specification, and small Angles, 1.50c. to 1.55c.

Bars.—There is a somewhat active movement in Bars and prices have a strong undertone. The high prices for Scrap and the decided improvement in the outlook encourage manufacturers to hold for full prices on refined Bars, so that 1.40c. to 1.45c., delivered, is about as well as can be done for good Iron. Steel Bars are more active than they were, but prices are unchanged at 1.43½c. to 1.50c., delivered.

Sheets.—Active at firm prices, with an upward tendency on the best qualities. Prospects seem to be quite favorable, and as the output is likely to be somewhat restricted, owing to delays incidental to the weather, buyers are a little anxious in regard to deliveries.

Old Material.—The market is very unsettled; some hold for extreme prices, others who are less confident are disposed to meet the market for March and April deliveries. The extremely bad weather works both ways. In some it is hard to get material for quick shipment, in others the mills are holding up deliveries temporarily. Bids and offers are about as follows:

Old Steel Rails.....	\$13.50 to \$14.00
Heavy Steel Scrap.....	12.75 to 13.50
Low Phosphorus Scrap, nominal.....	17.00 to 18.00
Old Steel Axes.....	16.00 to 17.00
Old Iron Rails.....	15.00 to 16.00
Old Iron Axes.....	19.00 to 20.00
Old Car Wheels.....	13.00 to 13.50
Choice Scrap, R. R. No. 1 Wrought.....	16.00 to 17.00
Country Scrap.....	14.50 to 15.50
Machinery Scrap.....	13.00 to 13.50
No. 2 Light Scrap.....	11.00 to 11.50
No. 2 Light (Ordinary).....	9.00 to 9.50
Wrought Turnings.....	9.25 to 9.75
Wrought Turnings, Choice Heavy.....	10.00 to 10.50
Cast Borings.....	7.00 to 7.50
Stove Plate.....	11.50 to 12.00
Wrought Iron Pipe.....	12.00 to 12.50

Cleveland.

CLEVELAND, OHIO, February 23, 1904.

Iron Ore.—Vessel interests are considerably disturbed over the report that the output of Iron Ore is to be so greatly reduced. It is now hardly possible that there will be any contract tonnage employed on the lakes during the entire year, as the movement may be accomplished with the boats owned by the producing consumers or by those which shall be chartered at the going rates. The belief that the original estimate of production was exceedingly low is now general, the estimates most in vogue making the production amount to between 19,000,000 and 20,000,000 tons. Upon the assumption that the fleet owned by the producing consumers will carry approximately 14,000,000 tons in a season of ordinary length, and that the output in the aggregate will be about 19,000,000 tons, the quantity left to be carried by merchant ships will be about what is usually left for wild boats. There is now talk of starting with a rate of 70c. a ton between Duluth and Ohio ports.

Pig Iron.—The situation in Foundry Iron has improved perceptibly. Consumers show a growing tendency to cover their needs as far ahead as possible at the existing prices. This is partly the result of a growing business optimism and partly of the low prices at which Foundry Iron is being offered in this territory. While prices are down to cost, and in some instances probably under it, the market has stiffened ever so little, and \$12.50, in the Valleys, for No. 2 might be considered about the safest basis. There is also an appreciable increase in purchases for spot consumption. The Southern furnaces are still out of this territory. Bessemer and Basic Irons are quiet, no orders having been placed except for very small lots which come up now and then and are sold out of stock. The Coke trade is a little stiffer than it was. Good 72-hour Foundry Coke is quoted \$2.25 to \$2.50, at the oven; good Furnace Coke at \$1.50 to \$1.60, at the oven. The Pig Iron prices are quoted, f.o.b. cars, Cleveland, as follows:

Northern Coke, No. 1 Foundry.....	\$14.00 to \$14.25
Northern Coke, No. 2 Foundry.....	13.50 to 14.00
Northern Coke, No. 3 Foundry.....	13.00 to 13.25
Southern Coke, No. 1 Foundry.....	14.25 to 14.50
Southern Coke, No. 2 Foundry.....	13.75 to 14.00
Southern Coke, No. 1 Soft.....	14.25 to 14.50
Southern Coke, No. 2 Soft.....	13.75 to 14.00
Jackson County, 8 per cent. Silicon.....	16.95 to
Hanging Rock Charcoal, No. 1.....	.. to 23.45
Southern Charcoal, No. 1.....	20.00 to 20.50
Lake Superior Charcoal.....	16.50 to 17.00

Finished Iron and Steel.—The Bar situation continues to be the center of interest. Bar Iron buying is attended with unusual perplexity and quoting a market in this territory is difficult. The producers are contending with high prices for Scrap, which suggests that the selling price of the finished product ought to run about 1.30c., Youngstown, or even 1.35c. The demand, however, is so light as to seem to warrant a lower price. It seems possible that some of the buying of Steel Bars which was reported a week ago has not been definitely closed. Much of it was anticipatory of an advance in the price. Since this has not come about, although expected within a month, the demand for Steel Bars has fallen off slightly. Notwithstanding that fact, the tonnage is still heavy, indicating a splendid current demand, regardless of any fears the consumers may have of the future course of prices. Efforts are now being made to bring about an agreement among the smaller Sheet producers, and while not entirely successful, they have had a certain effect, the market stiffening and radical cuts in prices having disappeared. The larger producers are getting something nearer their share of orders now. The prices which have been recently quoted serve at least as a nominal basis for computing what would have to be paid for assorted lots. These prices are 2.50c. for No. 27 Black Sheets out of stock; 2.35c. for one-pass Cold Rolled, No. 27, in car lots at the mill. Galvanized Sheets are quoted 75, 10 and 2½ off list for No. 22 and lighter, as a basis, heavier gauges bringing 75 and 10 off list. There has been a demand for Hoops in this territory and reports have had it that radical cuts in prices have been made. It seems, however, that 1.40c., Pittsburgh, is about the basis. The reports of cutting by the independent mills on Billets have become more persistent during the past week or so. The association is still holding for \$23.50 for 4 x 4 Bessemer, but is not getting any of the business. The Rail trade is quiet. In Structural Shapes and Plates there has been a little better specification against old contracts and a little buying for immediate consumption, but it can hardly be said that the market has livened up any.

Old Material.—The scarcity of Scrap of certain sorts is putting prices up gradually, the whole market having a better tone. It is apparent, however, that consumers are strongly averse to paying any higher figures than they have been. This gives the market a stiff but dull feeling, which practically forces stagnation. The prices are continued, as follows, all gross tons: Old Steel Rails, \$14 to \$15; Old Iron Rails, \$15 to \$16; Old Car Wheels, \$13.50 to \$14.50;

Railroad Malleable, \$11.50 to \$12.50; Heavy Melting Steel, \$12. All net tons: Cast Borings, \$5; No. 1 Railroad Wrought, \$12 to \$12.50; No. 1 Busheling, \$11 to \$12; Wrought Turnings, \$7.50; Iron Car Axles, \$18; No. 1 Cast Scrap, \$11.50 to \$12; Stove Plate, \$9 to \$10.

The Silberman Iron Company have been organized to deal in Iron and Steel Scrap, with offices and yards located at 192-216 Scranton avenue, Cleveland.

The Tod, Stambaugh Company, Cleveland, Ohio, will handle this year the line of Ores heretofore sold by Drake, Bartow & Co. of Cleveland.

Harry Bialosky, formerly with the Cleveland Iron & Metal Company, having withdrawn from that firm, has formed a partnership with S. W. Goldman of Cleveland. They will carry on the Scrap Iron business at 602-612 Canal street, Cleveland, Ohio, where their office and yards are located.

Birmingham.

BIRMINGHAM, ALA., February 22, 1904.

If one judged the Iron market by the surface indications he could say but little of an encouraging nature. Prices early in the week settled down to a basis of \$9.50 for No. 2 Foundry, which became the general asking price, and on that basis the most of the business concluded was transacted. There were no strong spots in the market during the entire week. The situation was tersely expressed by the leading official of the leading company when he said: "We are selling some Iron on the basis of \$9.50 for No. 2 Foundry, but not much. If we wanted to sell a round lot we would have to shade that price to make it go; but we are taking no business below that basis, although it is offered to us, and with it goes the assurance that others are accepting it. As to the market, it is weak, and you can say it is so weak that it appears as if one strong look would break it." This voices the general opinion, though some are very chary with opinions this week, just simply sawing wood and saying nothing. There are reports of sales below quotations above given, but it is simply impossible to get them confirmed. No one here will admit making any sale below a \$9.50 basis. In some competing districts, where money was needed, prices have been scaled down 25 and even 50 cents, and the price is published as "on the Birmingham basis," and the impression is made that the sale was made by this district. For instance, a sale was made by a furnace north of us on a basis of \$9.50 for No. 2 Foundry. The freight was 40 cents against our rate. At once it was announced that the Birmingham district was selling on the basis of \$9.10 for No. 2 Foundry. There was more than one sale made on the same basis, and the selling was not confined to one interest. But the sales were not made by the Birmingham district. That is the point. But below the surface of affairs one can find some things to encourage an optimistic feeling. While the market was weak, the sales were larger than those of the preceding week. One leading interest report their sales for one day at 7000 tons. Another interest report sales for the week as greater than their output. So that those who have the impression that nothing is doing in Iron are hugging a delusion to their souls. Besides this, some of the large interests are feeling the market for soft spots for the second quarter delivery. One of these interests, which bought at the close of the past year for delivery this quarter, was in the market for 25,000 tons for delivery over the second quarter. They secured no Iron, because no one would meet their views, which were, it is reported, on the basis of \$9 and less for No. 2 Foundry. These things show an interest in the market which has been conspicuous of late by its absence. The largest single order reported was for 2750 tons, distributed between various grades, and the price obtained was given as schedule price—i.e., on basis of \$9.50 for No. 2 Foundry. There were a few sales of 1000-ton lots. Among them was one lot of No. 4 Foundry at \$8.50 and some No. 3 Foundry at \$9. There was a fair sprinkling of business in No. 2 Foundry at \$9.75 for delivery in the second quarter, and sales of that grade to go to Eastern points, prompt shipment, at \$9.50. But there were no orders of significance. They ran, as a rule, from 100 tons to 500 tons, and while there has been some increase in orders for second quarter, the bulk of the business was for prompt delivery. It would take but a moderate demand to advance prices here, as the trade is on "the tip-toe of expectation" concerning the demand now almost due for the second quarter. It is figured that the requirements to be yet satisfied are large enough to change the current of the market and guide it to the goal of better prices.

A request was made to the Dimmick Pipe Works to furnish your correspondent with a concise statement of the condition of the Pipe trade and also a list of important contracts. It evoked the following reply:

"We take pleasure in reporting very flattering conditions for the Pipe manufacturers this year. We are very easy in the matter of orders, having recently booked large orders for the Laclede Gas Light Company, St. Louis, Mo.; Minne-

apolis Gas Light Company, Minneapolis, Minn.; the City of St. Paul, St. Paul, Minn.; Spring Valley Water Company, San Francisco, Cal.; the City of Carthage, Carthage, Mo.; the City of Rockford, Rockford, Ill., and many other smaller orders in all parts of the United States. In export work we can report only a small amount for delivery at San Juan, Porto Rico. We are, however, competing for very large orders in Mexico, the Hawaiian Islands and Germany, and may have something of interest to report regarding the export field in the very near future. European manufacturers are at present quoting higher prices than can be secured from American makers, and the demand from foreign customers is, therefore, very good."

It is understood that the United States Pipe Company in private converse corroborate in their own experience the Dimmick report, but an application to the company for information gathered no fruit. While reports from other industrial interests would not be so roseate in hue, none of them would be bad. Some could be labeled "more than satisfactory," while none would be "not satisfactory." Affairs in one line can't be so prosperous without in some way exerting a beneficial influence on the others.

At the Steel mill the mixer and the converter have been completed and so far have been in successful use, adding to the efficiency of the mill and minimizing cost of production. A statement purporting to be based on information from the president of a Mississippi railroad, now being constructed, is to the effect that they have contracted with the Ensley Steel mill for 16,500 tons of Steel Rails, to be supplemented by contract for 20,000 more. But the management refuse to confirm and simply say they have as yet received no written contract for such a deal. But there is such probability surrounding the reported transaction that the report appeals to one's credulity. Grapevine news often outfoots official red tape documents.

The directors of the Lookout Mountain Iron Company had their annual meeting here last week and re-elected the old officials. By May of this year they may be turning out Iron.

The Jenifer Furnace will be idle certainly as long as present conditions exist, and the probability is that when the furnace is again lighted it will have new owners.

(By Telegraph.)

BIRMINGHAM, ALA., February 23, 1904.—There is apparently a better feeling in Iron. One lot of 1000 tons No. 3 Foundry sold at \$9.25, delivery covering three months. Some No. 4 Foundry sold at \$9, nearby delivery, but the demand as yet is very moderate and there is no activity in the market. A very moderate increase in the demand would stiffen prices.

Cincinnati.

FIFTH AND MAIN STS., February 24, 1904.—(By Telegraph.)

But very few things that are good can be said about the Pig Iron market at this writing. It is weak and appears to be suffering from a spell of indigestion or some other cause unknown to the general authorities. As far as the reported transactions are concerned, the cutting of the price-list does not appear to be productive of business. Nevertheless it is believed that some prices have been made so extremely attractive as to cause the quiet closing of more business than appears upon the surface. While it is not known positively that No. 2 Southern Iron has been sold on the basis of \$9, Birmingham, yet that quotation has been offered, and No. 3 Southern Foundry has sold on the basis of \$8.50, Birmingham. Some pretty irregular prices prevail in Northern brands as well as Southern. The range in Southern brands is about \$1 between the high asking prices of some companies and the low prices offered by others. Northern Iron has been sold at different points over the State by variously located furnaces at figures which represent almost nothing in the way of determining actual values when applied to this immediate district. A quotation, however, for No. 2 has been given on the basis of \$12, Hanging Rock. Some agents report the inquiry as a little more active. Others say that the Foundry Iron market is as flat as it could possibly be. Freight rates from Hanging Rock district to Cincinnati, \$1.15, and from Birmingham, \$2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$12.50 to \$13.25
Southern Coke, No. 2.....	11.75 to 12.75
Southern Coke, No. 3.....	11.25 to 12.25
Southern Coke, No. 4.....	10.75 to 11.75
Southern Coke, No. 1 Soft.....	12.50 to 13.25
Southern Coke, No. 2 Soft.....	11.75 to 12.75
Southern Coke, Gray Forge.....	10.75 to 11.50
Southern Coke, Mottled.....	10.75 to 11.50
Ohio Silvery, No. 1.....	16.15 to 16.65
Lake Superior Coke, No. 1.....	13.65 to 14.15
Lake Superior Coke, No. 2.....	13.15 to 13.65
Lake Superior Coke, No. 3.....	12.65 to 13.15

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$18.75 to \$19.00
Lake Superior Car Wheel and Malleable	18.75 to 19.00

Coke.—Dullness is the way to characterize the general Coke market. There is but very little doing and prices are

without change, about \$2 for West Virginia and Connells-ville Coke, f.o.b. ovens.

Plates and Bars.—The demand for Structural Steel is opening up quite firmly, and the general trend of the Bar market is good, as far as activity goes, and prices are unchanged. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.75c., with half extras; the same in smaller lots, 1.90c., with full extras; Steel Bars, in carload lots, 1.43c., with half extras; the same in smaller lots, 1.80c., with full extras; Base Angles, 1.73c., in carload lots; Beams and Channels, in carload lots, 1.73c.; Plates, 3/4-inch and heavier, 1.73c., in carload lots; in smaller lots, 2c.; Sheets, 16-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; 14-gauge, in carload lots, 1.95c.; in smaller lots, 2.50c.; Steel Tire, 3/4 x 3-16 and heavier, 1.63c., in carload lots.

Old Material.—The market shows a little more interest and possibly some slight degree of increased activity. We quote dealers' buying prices, f.o.b. Cincinnati, as follows: No. 1 Wrought Railroad Scrap, \$10.50 to \$11 per net ton; No. 1 Cast Scrap, \$10 per net ton; Iron Rails, \$14 per gross ton; Steel Rails, rolling mill lengths, \$11 per gross ton; Iron Axles, \$15 per net ton; Car Wheels, \$11 per gross ton; Heavy Melting Scrap, \$10 per gross ton; Low Phosphorus Scrap, \$11.50 to \$12 per gross ton.

Pittsburgh.

PARK BUILDING, February 24, 1904.—(By Telegraph.)

Pig Iron.—The Pig Iron market is showing signs of improvement, and while prices are not any firmer, there is considerably more inquiry. The United States Steel Corporation are now operating 80 per cent. of their blast furnace capacity, and are still short of metal for some of their plants. For this reason it is believed that it may be only a short time until the Steel Corporation comes in the market as purchasers of Bessemer Iron for prompt shipment. Bessemer Iron is fairly strong at \$12.75, Valley furnace, or \$13.60, Pittsburgh. On a firm offer and for large tonnage this price might be slightly shaded. The demand for Foundry Iron is quiet, and best brands of Northern No. 2 are held at \$12.40, Valley, or \$13.25, Pittsburgh. For a large tonnage of Foundry Iron and for extended delivery this price would be shaded. There is very little doing in Gray Forge, and domestic brands are held at about \$12.75, Pittsburgh.

Steel.—Consumption of Steel is steadily increasing, owing to active condition of the Wire, Tin Plate and Pipe trades, and some of the finishing mills of identified interests of the United States Steel Corporation are short of Steel. There is hardly enough new business being offered to test the strength of the Billet agreement, but occasional small sales of Bessemer Billets and Sheet Bars are made at official prices of \$23 for Billets and \$23.50 for Sheet Bars. Open Hearth Billets and Sheet Bars can be obtained from outside mills at slightly less than pool prices.

(By Mail.)

In spite of a general impression to the contrary, it is practically certain that the Ore Association will be continued this year and on lines satisfactory to both producers and consumers of Ore. At the meeting of the Ore interests, held in Cleveland about two weeks ago, a committee of five was appointed to take up certain matters, more especially regarding the conciliating of the different interests that threatened for a time to disrupt the Ore Association. Another meeting of the Ore producers is to be held in Cleveland on Thursday, February 25, at which time it is believed the different interests will come together and renew the Ore agreement for this year. Nothing official has been given out as to probable prices of Ore for this year, but it is the general belief that Old Range Bessemer Ores will be about 50c. and Mesaba Bessemer about 35c. a ton lower than last year.

A. W. Thompson, president of the Republic Iron & Steel Company, was in Pittsburgh this week, and while here stated that there had been very general improvement in the Iron trade and that the orders entered in January by the Republic Company were larger than in any single month since 1902. Mr. Thompson reports that 60 per cent. of the blast furnace capacity of the Republic Company is active, and several more stacks will be started very soon. In this connection it may be stated that at this time the United States Steel Corporation have about 80 per cent. of their blast furnace capacity in operation, while at the same time the different interests of the Steel Corporation are short of Pig Iron, and this leads to the belief that the Steel Corporation may possibly be a buyer of Pig Iron in the near future.

The Central Freight Association have given notice that the special freight rates on Iron and Steel for export will be removed on August 1 next. Several months ago the large Steel interests secured a concession of 85c. a ton over regular rates on Pig Iron, Billets, Sheet Bars and Finished Iron and Steel to all tidewater points. On Finished Material the export freight rate was 5c. per 100 lbs. less on export business than the regular freight rates. The re-

moval of these concessions in freight rates on Iron and Steel for export is being opposed by the manufacturers, and it is possible the action of the railroads in removing them will be reconsidered prior to August 1. At the same time it is a fact that official notice has been given of their removal.

Tonnage in Wire products continues extraordinarily heavy, and one leading local mill has advanced prices on Wire and Wire Nails \$1 a ton, but as yet no general advance has been made by the mills, but is looked for any day. The Cotton Tie mills are to hold a meeting on Thursday, February 25, at which it is expected a price for Cotton Ties for delivery this year will be adopted.

The general situation in the Iron trade is fairly satisfactory, demand for Steel and finished products showing gradual improvement. While it may seem strange to make the statement, yet it is a fact that some of the finishing mills of allied interests of the United States Steel Corporation are having trouble in getting prompt deliveries of Steel. This is due partly to the heavy tonnage being placed in Wire and Wire Nails, Pipe and several other products. Prices show no material change, but Pig Iron is a shade firmer and it is evident that consumption is fully up to production, or perhaps larger.

Steel Rails.—The Rail trade is in a more satisfactory condition than for some time, and it is claimed that orders placed in February have amounted to 150,000 tons or more. Negotiations are on with several of the larger roads, and it is believed additional tonnage will soon be placed. The price remains at \$28, at mill, for Standard Sections.

Hoops and Bands.—The Cotton Tie interests are to hold a meeting on Thursday, February 25, at which it is expected that prices on Cotton Ties for delivery this year will be adopted. Low prices are being made on Steel Hoops and we quote these at 1.35c. to 1.40c., depending on the order. Steel Bands are held at 1.30c., extras as per Steel card.

Plates.—While new tonnage in Plates is lighter than the mills like to have it, yet it is showing some betterment. The Standard Oil Company recently placed a contract for 30 tanks, which will require about 2000 tons of Plates. An inquiry is in the market from a shipyard for about 1500 tons, and demand from the general trade is improving. It is true, however, that tonnage in Plates is not large enough to give the mills full work, and a number of the leading Plate concerns are operating their mills only about half time. We quote: Tank Plate, 3/4-inch thick and up to 100 inches in width, 1.60c., at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottom Steel, 1.90c.; Locomotive Fire Box, not less than 2.10c., and it ranges in price up to 3c. Plates more than 100 inches in width, 5c. extra per 100 lbs. Plates 3-16 inch in thickness, \$2 extra; gauge Nos. 7 and 8, \$3 extra; No. 9, \$5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms net cash in 30 days.

Ferromanganese.—There is very little new business in Ferro, the leading consumers being covered for some time ahead. Low prices are being made, and English and domestic Ferro is being offered at \$43, in carload lots delivered.

Muck Bar.—The market remains very quiet, and we do not hear of any recent sales. We quote best grades of domestic Muck Bar at \$24.50, Pittsburgh, and on a firm offer this might be shaded.

Sheets.—The Sheet trade continues in fairly satisfactory condition, demand being larger than for some time, while the tone of the market is firmer. Several of the leading Sheet mills advise us that their entire product is under contract for several months ahead, all of this tonnage being entered at present prices. With the advent of good weather permitting outside operations, it is believed demand for Sheets would soon show very material improvement. The Sheet mills are working very closely together, and as a result prices are being better sustained than for some time. We quote No. 26 Black Sheets at 2.15c.; No. 27, 2.20c., and No. 28, 2.30c., at mill. Galvanized Sheets are now mostly quoted in net prices, which are equal to about 80 and 3 per cent. off. We quote No. 26 Galvanized Sheets at 2.85c.; No. 27, 3.04c., and No. 28, 3.23c. Jobbers charge the usual advances over these prices for small lots from store.

Railroad Spikes.—Demand continues quite active, and the two leading local mills have a good deal of tonnage on their books. We quote at \$1.60 to \$1.65 per 100 lbs., but may state that the lower price is quoted only on very desirable orders.

Structural Material.—The Structural trade continues rather quiet, only small orders being placed. However, there is a great deal of work in sight, but it is very slow in taking definite shape. In spite of the quiet condition of this trade now, it is believed the Structural business this year will be very satisfactory. Several large jobs in the Pittsburgh district are pending, but will not be ready for some little time yet. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6, 1.60c.; Zees, 1.60c.; Tees, 1.60c.; Steel Bars, 1.60c., half extras, at mill; Universal and Sheared Plates, 1.60c.

Wire Rods.—Consumption of Wire Rods at the present time is heavier than for months, owing to active condition of the Wire industry. Bessemer and Open Hearth Rods are very firm at \$30, Pittsburgh, and one leading local interest is quoting higher figures.

Spelter.—This trade is rather quiet and prime grades of Western Spelter for prompt shipment are held at 4.75c., Pittsburgh. For future delivery this price would be shaded.

Iron and Steel Bars.—Demand for both Iron and Steel Bars is more active than for some months, several leading mills reporting that tonnage placed so far this month is very much in excess of the same period in January. Reports that the agricultural implement trade had placed orders for 50,000 to 60,000 tons of Steel Bars are untrue, as this trade do not usually place their contracts before June or July. Tonnage in Iron Bars is heavier and the Republic Iron & Steel Company report that their tonnage in January was larger than in any month for more than a year. It is anticipated that an advance in price of Steel Bars of about \$1 a ton will be made at an early date. The minimum price of Iron Bars remains at 1.30c., Youngstown, or 1.34 $\frac{1}{2}$ c., Pittsburgh. We quote Steel Bars at 1.30c., Pittsburgh, in carload and larger lots. For quantities less than 2000 lbs. and not less than 1000 lbs. the price is 1.40c., and for less than 1000 lbs. the price is 1.50c.

Tin Plate.—A very heavy tonnage is being placed in Tin Plate, several of the leading meat packers having recently given out contracts for upward of 100,000 boxes, and a good deal of additional business is pending. We quote 100-lb. Coke Plates at \$3.45, Pittsburgh.

Skelp.—There is a better inquiry for Skelp and the leading mills have a good deal of tonnage on their books for delivery in the next two or three months. Prices are firm, Grooved Iron Skelp being held at about 1.45c., and Sheared at 1.50c., at mill. Slightly lower prices are being made on Steel Skelp.

Merchant Pipe.—The Pipe trade continues in very satisfactory condition, demand being exceptionally heavy for this time of the year and prices are firm. All indications point to a very heavy tonnage in Pipe this year. A large inquiry is in the market for an Oil Line, which will require a very heavy tonnage of Plates, but it has not as yet assumed definite shape. Discounts to consumers in carloads are as follows:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	69	59	66	56
$\frac{1}{2}$ inch.....	72	62	69	59
$\frac{3}{4}$ to 6 inches.....	76	66	73	63
7 to 12 inches.....	71	61	68	58
Extra strong, plain ends, $\frac{1}{2}$ to 8 inches.....	68	58	64	54
Double extra strong, plain ends, $\frac{1}{2}$ to 8 inches.....	60	50	56	46

Merchant Steel.—A meeting of the Shafting Association was held in Pittsburgh on Friday, February 19, but only routine business was transacted, prices not being touched upon. Demand for Shafting is heavy, the mills being well filled with orders, and prices are firm, discounts being 52 per cent. off in carloads and 47 per cent. in less than carloads, delivered in base territory. Demand for Merchant Steel is fairly good, but consumers largely continue the policy of placing orders only for actual needs. We quote: Smooth Finished Tire, 1.50c., base; Sleigh Shoe, 1.35c.; Open Hearth Spring, 1.80c. to 1.85c.; Toe Calk Steel 1.85c., base. The above prices are for carload lots at mill, the usual differential being charged for small lots.

Boiler Tubes.—A fair amount of tonnage is being placed in Boiler Tubes, but the railroads, who are the leading consumers, are buying very lightly. Discounts to consumers in carloads are as follows:

	Boiler Tubes.	
	Steel.	Iron.
1 to 1 $\frac{1}{2}$ inches.....	42 $\frac{1}{2}$	39
1 $\frac{1}{2}$ to 2 $\frac{1}{4}$ inches.....	55 $\frac{1}{2}$	38
2 $\frac{1}{4}$ inches.....	58	43
2 $\frac{1}{2}$ to 5 inches.....	64 $\frac{1}{2}$	50 $\frac{1}{2}$
6 to 13 inches.....	55 $\frac{1}{2}$	38

Connellsville Coke.—The Coke operators continue to report shortage in cars, which is interfering very seriously with shipments. Demand for Foundry Coke is quite active, but there is very little inquiry for Furnace Coke. We quote strictly Connellsville Furnace Coke at \$1.50 for prompt shipment, and \$1.60 to \$1.65 on contracts for future delivery. Outside brands of Furnace Coke are being offered at \$1.40 to \$1.45 a ton. Strictly Connellsville 72-hour Foundry Coke is held at \$2.10 to \$2.25, at oven, while one leading producer is said to be holding their Foundry Coke at \$2.50 a ton. Main Line brands of Foundry Coke are being offered at about \$2 a ton. Out of 28,631 ovens in the Upper and Lower Connellsville regions, 20,254 were active last week.

The New York Machinery Market.

NEW YORK, February 24, 1904.

As there were no deals of any magnitude closed to give it an impetus, business for the past week was just about what could be expected when the actual working days were cut down fully a third. As to general conditions, those of the past few weeks still prevail, there being no change of importance, and the orders and inquiries that have come in have been for small amounts, with one exception, though the volume has been fair. A noticeable feature of late has been the hesitancy on the part of even small buyers to close without more or less correspondence, and orders seem to be getting harder and harder to clinch. Another matter which has lately come into more than usual prominence in the machine tool trade is the dealing in second-hand machinery. While there has always been more or less exchange of these tools with a bonus for new tools, it is said that at the present time there is a great deal of this being done. There is no doubt but that extensive dealings of this kind have an unsettling effect on the market for new tools.

The most important happening since our last report has been the sending out of specifications covering about \$40,000 worth of machine tools, air compressors, &c., by the E. G. Spilsbury Engineering Company, consulting engineers, 45 Broadway, New York. The tools are intended for use in the State of Queretaro, Mexico, where the United Mining & Development Company of America, with main offices at 66 Broadway, New York, have secured extensive smelting and mining properties, which they are developing.

Smith & Mabley, 513-517 Seventh avenue, New York, who have for some time past been prominent in the automobile trade, are now purchasing the equipment for their new factory. The building, which is about completed, is 50 x 100 feet, 7 $\frac{1}{2}$ stories high, and stands on a site at the foot of East Eighty-first street, on the East River, where they have most excellent facilities for building their Simplex motor for automobile boats, as well as the boats themselves. While the firm have by no means their full complement of mechanical equipment, they are installing new machinery every day and now have sufficient in place to run the plant with a force of from 80 to 90 men. Besides their regular 30 and 75 horse-power motors, they are building a special 150 horse-power motor for automobile boats, as well as a 30 horse-power automobile, which is as small as they make. They have a number of orders in hand and are getting the different parts of their plant in operation as fast as they can.

Purchases of a small lot of machine tools are being made by the Canadian Pacific Railroad Company through their Montreal offices for their shops in Winnipeg, Canada.

Frank Klapetho, 8 Bridge street, New York, consulting engineer for the Cerro De Pasco Mining Company, Cerro De Pasco, Peru, has sent out specifications for a 200-ton hydrostatic wheel press to take 66-inch wheels and a 66-inch wheel lathe, double ended. Mr. Klapetho has recently placed orders for considerable machine tool equipment for the Peruvian mines, and it is understood that when the two 66-inch machines are contracted for the present requirements in that line will all have been met.

A press for forming wheelbarrow bodies, a steam hammer and a good sized lot of other machinery are required by the Scott Car Company, Knoxville, Tenn. They have recently completed the erection of a new two-story machine shop, 80 x 120 feet, with a boiler and engine room, 40 x 60 feet, adjoining. They have also just purchased ground on the Southern and Louisville & Nashville railroads, running 1000 feet along the tracks of the former road and having a depth of 350 feet. On this property is a wood working shop, 80 x 220 feet; blacksmith shop, 60 x 80 feet, and a foundry, 80 x 150 feet. These buildings, in connection with their new machine shop, when fully equipped with modern tools, will give the company a very complete plant for the manufacture of light steel cars, clay cars, wheelbarrows, pallets, &c. The company since their organization last August have been very successful, and have made some considerable shipments of their product. Alexander McMillan is president, and Alexander A. Scott is general manager.

In addition to the \$80,000 list of machine tools recently sent out by the Power & Mining Machinery Company, 52 William street, New York, they desire a number of electric motors for their shops at Cudahy, Wis., in capacity of 5 to 50 horse-power and constant speed wound for 220 volts. We understand that the bids for the main machine tool list are all in and that the proper officials now have them under advisement. It is expected that the orders will be placed some time next week.

One of the most important steps yet taken toward carrying out the scheme for the \$100,000,000 barge canal was the naming by Governor Odell of the special advisory commission of five expert engineers who will supervise its construction. State Engineer Bond will be chairman of the commission. The other members will be Alfred Brooks Frye, now in charge of the United States buildings at the port of New York; Dr. Elmer L. Corthell, engineer of the West Shore Railroad; William A. Brackenridge, engineer in

charge of the Niagara Falls Power Company, and Major Thomas W. Symonds, United States engineer in charge of the public buildings at Washington.

It is the opinion in the trade that the Interborough Rapid Transit Company will either split up the orders and ask for new bids on certain machines or ask for new bids for the entire lot of machine tools, which they recently issued specifications for. It seems that they requested houses to bid on the whole amount, and there has been some confusion, as very few of the manufacturers produce all of the machines on the list.

The German-American Steel Ball Bearing Company have purchased the Traverse property in Bayonne, N. J., where they propose to install a plant for the manufacture of steel balls and bearings under the process in use by the large German company. It is their intention to import from Germany the special machinery for making the balls, but the other equipment will be purchased in this country. On the property are several buildings which will be utilized, one 50 x 110 feet, three stories, and one 74 x 150 feet, two stories.

Henry Pels & Co., 68 Broad street, New York, have received orders for their patent beam shears and punching machines from leading concerns in Baltimore and vicinity. The orders call for immediate delivery, and the machines will be used for the large amount of structural steel work necessitated in consequence of the recent fire.

The Poole Engineering & Machine Company announce that their works at Woodberry, Baltimore, Md., were not injured by the recent fire, but their office on German street was entirely destroyed. Their books and papers were removed in safety, and they have concluded to combine their office force at Woodberry, where they are completing a fire proof office building, which will afford much needed accommodation.

Under bids opened February 2 for supplies for the New York Navy Yard the following awards have been made:

Greer-Clarkson Company, Lebanon, Pa., Class 36, one electrically driven winch, \$565; Class 37, one electrically driven winch, \$570; Class 38, one electrically driven drum hoist, \$585.

Prentiss Tool & Supply Company, New York, Class 39, one universal monitor lathe, \$590; Class 45, one chain saw mortising machine, \$960.

Springfield Machine Tool Company, Springfield, Ohio, Class 40, one universal monitor lathe, \$400.

Garvin Machine Company, New York, Class 41, one monitor lathe, \$480.

Niles-Bement-Pond Company, New York, Class 42, one motor driven engine lathe, \$3580; Class 43, one horizontal boring and drilling machine, \$1450; Class 57, one bolt pointer, \$224.

Manning, Maxwell & Moore, New York, Class 44, one double blind style boring and mortising machine, \$146; Class 46, one automatic wire straightening and cutting machine, \$234; Class 51, one double angle shearing machine, \$1260; Class 52, one metal cutting band saw, \$387; Class 56, one automatic spur gear shaper, \$1475.

G. A. Ohl & Co., Newark, N. J., Class 47, one wire crimping machine, \$700.

Fairbanks Company, New York, Class 48, one universal cutter and tool grinder, \$222; Class 49, one emery grinder, \$217.73; Class 50, one engraving machine, \$560.

Falkenau-Sinclair Machine Company, Philadelphia, Pa., Class 53, one power press, \$882.

Erie Foundry Company, Erie, Pa., Class 54, one 1200-pound steam drop hammer, \$1350.

Gleason Works, Rochester, N. Y., Class 55, one automatic bevel gear planer, \$1495.

Drew Machinery Agency, Manchester, N. H., Class 58, one band resaw stretcher.

New York.

NEW YORK, February 24, 1904.

Pig Iron.—There has been some fair buying, which included about 5000 tons to a leading Cast Iron Pipe interest and some additional lots to other consumers. The trade is disturbed, however, by some reports of sales at very low prices. Thus some high silicon Lehigh Valley No. 2 Foundry has sold as low as \$13 at furnace, and a moderate lot of high silicon, Lebanon Valley Iron, at \$12.50. One of the large melters in this district was in the market this week, but withdrew, so far as known, without purchasing. We note some good sales of Basic Pig, aggregating about 5000 tons. The market for Foundry Irons is somewhat irregular, but some of the standard brands are fetching \$14 for No. 2 at furnace. We quote Northern No. 1 Foundry, \$14.75 to \$15.50; No. 2 Foundry, \$14 to \$14.75; No. 2 Plain, \$13.25 to \$13.75, and Gray Forge, \$13 to \$13.50, tidewater. Tennessee and Alabama brands are quoted \$13 to \$13.50 for No. 2 Foundry, and \$12.50 to \$12.75 for No. 3 Foundry.

Steel Rails.—Eastern mills report only few additional

orders. A report has been current that the Harriman interests have recently purchased 15,000 tons of foreign Rails for Pacific Coast delivery. This is denied by the importing firm named in connection with the transaction. A denial is also made of the rumor that the Pennsylvania Steel Company had given the Canadian Pacific Railroad an option to deliver 80,000 tons of Steel Rails, in addition to those sold lately.

Cast Iron Pipe.—General business continues in about the same condition as previously reported. Manufacturers are in receipt of numerous small orders and report prospects excellent for the development of much better trade with the advent of spring. Some good business is even now being placed, the most notable contract of the past week having been the letting of 3000 tons, principally 24-inch, at East Orange, the successful bidders being a large Eastern independent company. Carload lots continue to be quoted at \$28 per gross ton for 6 to 10 inch, and \$27 for 12-inch upward, at tidewater, with special prices on large quantities, depending upon the desirability of the order.

Finished Iron and Steel.—Although the tonnage of structural work now being placed is not heavy, some encouraging features have developed. A Western railroad company, who a short time since stated that they would not be in the market this year, are asking bids on 6000 tons of bridge work. Another railroad company, who had also been regarded as not likely to do much this year, will ask for bids for \$500,000 worth of bridges as soon as the weather looks a little more favorable for outdoor work. The orders recently placed have run mainly from carloads to 400 tons, the most important having been an 1100-ton building in Binghamton, N. Y., secured by the leading interest. Quite a number of withdrawals of low bids have been made. This indicates that either manufacturers are not so anxious for work as they have been, or that they are no longer getting the support which had enabled them to make previous low prices. The outlook is consequently in favor of better maintenance of prices hereafter. Baltimore work is developing rather slowly. When it opens up, however, it will likely come with a rush. The Plate mills report a considerably better demand. The Newport News Shipbuilding Company captured some of the ferry boats to be built for local ferries, thus taking that much work from the local interests. Quite a good volume of other business, however, is coming forward. More work is coming out in power plants, involving the consumption of good quantities of plates. The frequency with which new business is now developing gives much encouragement to the manufacturers, leading to the belief that trade is gradually broadening. Prices are firmly held. The Bar Iron trade is better, manufacturers now maintaining prices at 1.44½c., New York, minimum, for Refined Iron. It is stated that this means fully \$1 per ton advance for the mills which have been lowest sellers. Manufacturers are quite confident that they will be able to secure still higher prices a little later. We quote, at tidewater, as follows: Beams, Channels, Angles and Zees, 1.74½c. to 2c.; Tees, 1.79½c. to 2c.; Bulb Angles and Deck Beams, 1.84½c. to 2.05c. Sheared Plates in carload lots are 1.74½c. to 1.85c. for Tank, 1.84½c. to 2c. for Flange, 1.94½c. to 2.10c. for Marine and 1.94½c. to 2.50c. for Fire Box, according to specification. Common Bar Iron, 1.35c. to 1.40c.; Refined Bars, 1.44½c. to 1.50c.; Soft Steel Bars, 1.44½c. to 1.50c.

Old Material.—Wrought Scrap and other Material used by rolling mills and Steel works are dearer, in sympathy with higher Western prices and the advance which has been made in Bar Iron. It is also strongly intimated that dealers who had sold short some time since are now being obliged to cover their contracts. Sales to consumers are limited to small quantities, as they are not disposed to take the advance cheerfully. The railroad companies sending out lists for the month have not been able to dispose of much of the material offered. Approximate prices, per gross ton, New York and vicinity, are as follows:

Old Iron Rails.....	\$16.00 to \$16.50
Old Steel Rails, long lengths.....	13.00 to 13.50
Old Steel Rails, short pieces.....	11.50 to 12.00
Relaying Rails.....	to 18.00
Old Car Wheels.....	12.50 to 13.00
Old Iron Car Axles.....	18.00 to 18.50
Old Steel Car Axles.....	14.00 to 15.00
Heavy Melting Steel Scrap.....	11.50 to 12.00
No. 1 Railroad Wrought Iron.....	15.00 to 15.50
Iron Track Scrap.....	14.00 to 14.50
Wrought Pipe.....	10.00 to 10.50
Ordinary Light Iron.....	7.00 to 7.50
Cast Borings.....	5.00 to 5.50
Wrought Turnings.....	8.00 to 8.25
No. 1 Machinery Cast.....	12.00 to 12.50
Stove Plate.....	9.50 to 10.50

The Shenango Furnace Company of Pittsburgh blew in last week their No. 1 stack at Sharpsville, Pa. This furnace is using 100 per cent. Mesaba ore and the sulphur very rarely exceeds 0.02. The output of the furnace is very satisfactory and is running about 200 tons a day. No. 3 stack of this company at Sharpsville will probably be blown in next week.

Metal Market.

NEW YORK, February 24, 1904.

Pig Tin.—There has been a general easing up of conditions. The scarcity of spot, which was so acute last week, has been removed almost entirely and the available supplies here at this writing are considerably in excess of the demand. There is a goodly quantity afloat, and it is conceded that no further apprehension need be felt for the immediate future. The relieving of the stringency as to spot supplies brought with it an easing of prices, and quotations are now considerably lower than they were a week ago. The London market is also somewhat lower. Business here showed no increase of activity with the arrival of the metal which replenished the supplies or with the declining of prices. This is taken as an indication that consumers were not greatly pinched by the recent shortage on spot stock. At this writing the following quotations prevail: Spot, 28.10c. to 28.40c.; February, 27.87½c. to 28.12½c.; March, 27.25c. to 27.75c. The London market is cabled £124 17s. 6d. for spot and £124 12s. 6d. for futures. The arrivals so far this month have aggregated 2406 tons, and the figures posted for the "afloat" are 4011 tons.

Copper.—No change is to be noted in this market. Prices are unchanged here and the dullness which has characterized the market for some weeks still prevails. The "official" prices announced by the producers are as follows: Lake, 12.50c. to 12.75c.; Electrolytic, 12.37½c. to 12.62½c.; Casting, 12.37½c. to 12.62½c. These prices are shaded ½c. by brokers and outside merchants. The London market shows a discount on futures of £1 5s., indicating that little faith is held in present prices abroad. To-day's cables quote spot at £57 7s. 6d.; futures, £56 2s. 6d. and Best Selected, £60. The exports this month show a very marked falling off, confirming the opinions last month that the heavy exportation was due to a special movement in which a large German house was concerned. Thus far this month the shipments have amounted to but 8800 tons.

Pig Lead.—The situation is without change. Prices are firm at the recently announced figures of the American Smelting & Refining Company—viz., 4.40c. for 50-ton lots of Desilverized, shipments from the West to be made upon receipt of order. Spot in store is quoted here at 4.50c. to 4.60c. St. Louis has advanced a shade to 4.35c. London is a shade higher, being £11 15s. by to-day's cable.

Spelter.—Is firmer and a good demand, coming particularly from the Steel Wire interests, is reported. The price of Ore has advanced \$2 per ton, and prime brands are said to have sold as high as 4.90c. in St. Louis this week. The price of spot here is 5c. to 5.10c., and the St. Louis wire on G. M. B.'s to-day is 4.82½c. London has advanced 2s. 6d. to £21 15s.

Antimony.—The market is firm, but unchanged. At the close to-day Cookson's was quoted at 7¼c. to 8c.; Hallett's at 7c. to 7¼c., and other brands at 6¼c. to 6¾c.

Nickel.—This metal is held firmly, with the usual volume of business passing. Large lots are quoted at 40c. to 45c., and smaller quantities at 50c. to 60c.

Quicksilver.—The tone of the market is steady. Flasks of 76½ lbs. are quoted at \$47 to \$47.50. London quotes £8 5s.

Tin Plate.—The demand for Tin Plate is very quiet, and the market as a whole presents a dull appearance, transactions being of an ordinary type, and the outlook not very favorable. Quotations, meanwhile, are unchanged on the basis of \$3.45 per box for 14 x 20 100-lb. Cokes, f.o.b. mill, equivalent to \$3.64, New York. At Swansea the market has fallen off 1½ pence to 11 shillings 1½ pence.

Lead Workers Abjure Their Unions.—After a six weeks' shutdown the mines and works of the Central Lead Company, at Flat River, Mo., have resumed operations. The plant was closed as a result of a strike fought on the basis of recognition of the union. The company, who steadfastly declined to recognize the union, closed down all of their operations, informing the men that they would remain so until they saw fit to throw off the domination of their union. Last week the men recognized the sincerity of the

company in their stand, and broke off their union affiliations and returned to work. E. F. Byrne of 100 William street, New York, is the company's Eastern representative.

Iron and Industrial Stocks.

The greater part of the week was decidedly dull in the stock market, neither railroad nor industrial stocks exciting much interest. Notwithstanding the war conditions and other unfavorable features, the market was firm until Tuesday, when a selling movement was precipitated by foreign holders of American securities. This caused a decline all along the line. Some of the industrial stocks were affected much more than others. The recession is shown by the following quotations on some of the most active stocks, the highest prices for the week being given, followed by the lowest prices on Tuesday: Car & Foundry common 19¼ and 19, preferred 69 1-3 and 67½; Locomotive common 23½ and 22½, preferred 80 and 79; Sloss-Sheffield common 38½ and 36¾; Tennessee 37¼ and 34½; United States Steel common 11¼ and 10¾, preferred 57¼ and 55½, new 5's 72½ and 71¾.

The last sales reported up to 1.30 p. m. Wednesday, were as follows: Car & Foundry common 19, preferred 67; Locomotive common 21¾, preferred 79¼; Colorado 30¼; Pressed Steel common 26¾, preferred 69; Railway Spring common 20½, preferred 72; Republic common 7, preferred 43½; Sloss-Sheffield common 36¾, preferred 79¼; Tennessee Coal 34¼; United States common 10¾, preferred 54¾.

The time set for the deposit of the Columbus & Hocking Coal & Iron Company stocks under an agreement, authorizing the concern to sell the property at not less than \$25 per share, expired on February 15. The plan may be abandoned.

The Allegheny Heating Company of Allegheny, Pa., suppliers of natural gas, have declared a quarterly dividend of 4 per cent., and an extra dividend of 8 per cent. The last previous dividend, which had been maintained for a long time, was at the rate of 3 per cent quarterly and 3 per cent. extra, or at the annual rate of 24 per cent. It has been the rule of this concern not to declare dividends that could not be maintained, so that on the basis of the dividend declared last week, the rate this year will be 48 per cent., or just double the dividend paid last year. The par value of the stock is \$100 per share, but as high as \$290 has been bid, while the stock is held at about \$350.

The annual meeting of the National Lead Company was held on February 18, in Jersey City. The old Board of Directors was re-elected without opposition. The annual report of President L. A. Cole showed total assets on December 31, 1903, \$32,706,151; on the same date in 1902 they were \$32,563,484. Of the liabilities \$30,000,000 was stock, equally divided between common and preferred. The surplus was \$1,962,831, an increase over the previous year of \$525,789. The net earnings for 1903 were \$1,569,069.47. During the year the company paid four dividends of \$260,820 each. Amendments to the by-laws were approved, including one providing that the annual meeting shall be held on the third Thursday of April.

La Belle Bonds Placed.—Through the efforts of John A. Topping, president, the Security Trust Company, the Dollar Savings & Trust Company of Wheeling and a number of capitalists have taken the remaining \$1,000,000 6 per cent. gold bonds of the La Belle Iron Works of Steubenville, Ohio, which will not alone suffice to complete the plant, but also to supply sufficient working capital. The officers of the La Belle Iron Works are: John A. Topping, president; A. J. Clarke, first vice-president and vice-chairman of Board of Directors; E. W. Mudge, second vice-president; Isaac M. Scott, secretary and treasurer; W. D. Crawford, general manager. The directors are: A. J. Clarke, Wheeling; N. E. Whitaker, president Whitaker Iron Company, Wheeling; A. H. Woodward, general manager Woodward Iron Company, Woodward, Ala.; A. S. List, president the City Bank of Wheeling; W. S. Foltz, president First National Bank, New Castle, Pa.; D. J. Sinclair, cashier Union Deposit Bank, Steubenville; J. E. Wright, president J. E. Wright Company, Wheeling; H. C. Greer, New Castle, Pa.; H. C. Franzheim of G. Mendel & Co., Wheeling.

Cincinnati Machinery Market.

CINCINNATI, February 20, 1904.

Very little change is to be noted in the condition of affairs among the machine tool interests of this city. Business is at a low ebb, and while there is an occasional quickening that causes a slight ripple on the sea of trade, it is soon spent and conditions quiet down as before. The many shops in this section, with few exceptions, are working limited forces and on short time. Both employer and employee accept the existing conditions as a matter of fact, realizing that they are up against a proposition that practically admits of no debate. While there is more or less dissatisfaction among the men, there has no remedy been suggested that can relieve them. Several years since, when domestic business became paralyzed and the bottom dropped completely out at home, a brisk demand appeared from Continental Europe, which had the effect, in a measure at least, to offset the lack of trade at home. Such, however, is not the fact in the present crisis, and there is only an occasional call for American tools from foreign countries. It is a generally conceded fact among machine tool men that the extreme severity of the present winter has had much to do with this condition of affairs. Take, for instance, the engine builder, who must needs have a foundation upon which to place a plant. The ground is frozen, so that all new business in this line must necessarily be suspended. It is predicted that as soon as genuine signs of spring appear matters in general will assume a brighter and more cheerful aspect. There is some little improvement to be noted in the purchase of tools by the railroads, yet little can be expected from this source until later in the year. The structural iron men are inclined to the opinion that the Baltimore fire satisfactorily settled the question of material to be used in the construction of fire proof buildings, and they anticipate that in the rebuilding of the destroyed portion of that city large demands will be made upon them to furnish the material for the same.

The Sebastian Lathe Company, manufacturers of small sized lathes, report continued good trade, both foreign and domestic. Theirs is one of the few plants that are working a full force on full time. They have been working on an order from the Japanese Government for a number of their 15-inch lathes, and since the war began have been cabled to hurry shipment forward to Yokohama.

Trade during the last few months with the Bullock Electric Company has been far from satisfactory. The month of February, however, has started on the upward trend and conditions have again assumed a brighter look. They are shipping three of their 350-kw. engine type direct connected generators to Louisville for the new Louisville & Nashville Railroad shops being erected in that city; two 600-kw. alternating generators and seven transformers for connection with water wheels for the North Shore Company, Canada; one 1000-kw. water wheel connection generator for the Sudbury Power Company, Canada; one 1000-kw. engine type generator for the Indianapolis & Eastern Railway Company, Indianapolis, Ind.

The American Tool Works Company say that the month of February so far is somewhat of an improvement over January. They are figuring on several large propositions, and have recently made a shipment of miscellaneous tools to Japan. They are at work perfecting designs for some new tools, particularly their new radiating drill, which they anticipate will be quite a trade catcher.

The I. & E. Greenwald Company, makers of engines and gears, report trade very quiet and no indications in sight for betterment. They have a 500 horse-power cross compound engine ready for the new shops of the Wier Frog Company, East Norwood, but are unable to install it on account of the continued cold weather.

Houston, Stanwood & Gamble, manufacturers of slide valve engines, report their sales for January this year about double what they were for the same month last year. These sales were made principally in the South, from which section comes the bulk of their trade. They account for the increase of this year's sales over last by their having recently opened an office in New Orleans, where E. C. McCullough is manager. He also looks after their interests in Louisiana and part of Mississippi. They also have H. M. Houston traveling over territory consisting of Oklahoma, Indian Territory and Texas, which is bringing good results. They have established quite a large agency at Houston, with a number of smaller ones throughout the State of Texas and Indian Territory. Their trade in the States where most manufacturing is done is very quiet. Their export trade in the last four months has been up to what it was early last year. At this season of the year they are shipping a number of carloads of engines to their agents in the Southwest to supply

their trade during the ginning and sugar making season, which commences a little later. They report trade particularly good in Florida, where they are furnishing a number of engines and boilers for sawmill outfits. Among their orders is one for a pair of engines that will develop 500 horse-power for the Peshtigo Lumber Company, Peshtigo, Wis.; one 60 horse-power engine for the Ruston Hardware & Supply Company, Ruston, La.; a pair of 150 horse-power engines for the Interstate Engineering Company, Cleveland, Ohio; a 40 horse-power engine for Babcock & Wilcox, New York City, for export; one 80 horse-power engine and boiler for the Jacksonville Cooperage Company, Jacksonville, Fla., and a 150 horse-power engine and boilers for the Southern Machinery & Supply Company, Jacksonville, Fla. They say inquiries at the present time are very good and they anticipate as large a volume of business this year as they had last.

Very little progress has been made with the new shops of the Cincinnati Machine Tool Company on Spring Grove avenue since last report, owing to the extreme cold. Trade with this firm is moderate and prospects for active resumption are not such as would be desired. Foreign trade is showing up in a limited degree and it is hoped will materially strengthen during the early spring.

The Lodge & Shipley Machine Tool Company are to be classed in the same category as machine tool men generally. They are in a measure disappointed with the slowness with which trade is assuming its normal condition, but are confident that a decided change for the better cannot much longer be delayed.

The John Steptoe Shaper Company are probably as active as any concern in this city. They are running full time and have orders booked ahead which they are gradually cleaning up. New orders are coming in scatteringly, but they feel satisfied that they are securing their share of trade offering.

The Cincinnati Milling Machine Company report a more progressive trade for February than the month previous. They are doing considerable estimating and feel encouraged with the manner in which inquiries are being received. They are filling some foreign orders as well as taking care of customers at home. They consider the severity of the winter has had a considerable share in causing the present dullness, and anticipate much for the next 30 days.

The Lane & Bodley Engine Company claim quite a renewal of trade, especially from the lumber districts, whence numerous demands are being made upon them for small engines. January sales of this year were far in excess of last, and February looks very promising.

It takes nearly 130,000 of some of the screws made in an American watch factory to weigh 1 pound. The pivot of the balance wheel is only 1-200 inch in diameter, and the gauge with which pivots are classified measures to the ten-thousandth part of an inch. Each jewel hole in which a pivot fits is about 1-5000 inch too large, in order to permit play. The finest screw for a small sized watch has 200 threads to the inch, and weighs less than 1-10000 ounce. Jewels of sapphire, ruby or garnet are first sawed into slabs 1-50 inch thick, and are shellacked to plates so that they may be surfaced. Then the individual jewels are sawed or broken off, drilled through the center and a depression made in the convex side for an oil cup. A pallet jewel weighs 1-150000 pound; a roller jewel a little more than 1-250000 pound.

The total gold production of the world from the discovery of America by Columbus to the year 1900 is, according to the report of the United States Mint, in round figures, \$9,811,000,000. Pure gold of this value would weigh about 16,272 tons, and would occupy a space equal to 27,039 cubic feet. Graphically, this amount could be represented by a solid circular tower of gold 20 feet in diameter and 86 feet high. The total yearly world's production of gold since 1900 would increase the height of such a tower about 3 feet each year. In other words, the present annual production is some 14 times that (0.211 feet) represented by the average of the previous 408 years.

Graphite is said to be an excellent preservative for Manila rope. One rope manufacturer treats the inner yarns of each strand, as well as the core, in a bath of lubricant the ingredients of which are graphite and oil. This lubricant thoroughly permeates the fiber, thus overcoming internal wear, while sufficient comes to the surface, and the lubricant does not injure the rope.

Notes from Great Britain.

The German-Belgian Export Policy.

LONDON, February 13, 1904.—A Birmingham merchant has received a communication from principals in Belgium to the effect that the German-Belgian Steel Syndicate, having become an accomplished fact, have reversed the policy hitherto pursued, and in future intend to sell raw materials for exportation at home prices. The communication goes on to state that this change of attitude has been brought about through the pressure of the Socialist party in the German Parliament. The letter is undoubtedly authentic, but whether it does not go beyond the bounds of potential fact is altogether another question. It is, of course, a matter of common knowledge that German sheet makers, wire drawers and nail and hollow ware manufacturers complain bitterly of the manner in which their foreign trade is handicapped by the exceptionally low prices at which Dutch, Belgian and British manufacturers obtain their supplies of German steel. Only recently a large contract has been executed in Copenhagen by British manufacturers with German material, the difference between the home price and the export price enabling the British makers to score heavily at the expense of their competitors.

Assuming that the German-Belgian Steel Syndicate intend, at least for the present, to advance their export prices, the event cannot fail to have a distinctly stimulating effect upon the British productive industries in iron and steel. Color is lent to the probability of this new German policy by the fact that this week Belgian and German quotations have stiffened. For example, for sheet bars £4 10s. has been asked, although this is higher than some other quotations. None the less, consumers are not dismayed. They do not like it, but they are not making contracts, being content to take the risk of further increases and await developments. They feel that there is in any event another alternative, and are looking to America with half hungry eyes; not that there is any great volume of trade, but quite the reverse. Black sheet makers, who have been the largest buyers of German and American bars, all agree that work is slack.

George Westinghouse at His Company's Annual Meeting.

George Westinghouse presided on February 5 at the fourth annual meeting of the British Westinghouse Electric & Mfg. Company. Some of the observations made by him are worth putting on record. Dealing with the frequent calls for further capital, he remarked that the management had wisely—as he believed events would show—deemed it of the highest importance to secure a large amount of business in order fully to utilize the manufacturing facilities which had been provided. To that end a large selling staff had been created, and local offices had been established at several important centers. The report indicated the degree of success which had attended the efforts to secure new business. The orders in hand not executed on the 31st ult. amounted to £1,608,256. He was satisfied, considering all the circumstances, that the results already achieved had justified the expenses which had so far been incurred in building up and conducting the company's business, and he confidently looked forward to results comparable to those obtained by the great companies in America. The company's works at present could give employment to about 7000 operatives, and the buildings had been so planned that extensions which would greatly increase their output could be made for a comparatively small expenditure of capital. While just at this moment the works had a surplus capacity, yet in the near future, in view of the existing developments in this country, there seemed every reason to believe that the present works would not be large enough.

From the beginning of their operations it had been apparent to the directors that "a head or chief executive" for the company should be found. He had devoted much thought and investigation to this matter, and he should that day propose to the meeting the election as one of the directors of William I. Buchanan, who would arrive in London about the 20th inst., and to the board he would

propose his appointment as the deputy chairman and managing director of the company. William I. Buchanan—who would, with himself, represent the American companies' interests in the British company—had had an exceptional experience in the management of important affairs, and under that gentleman he was satisfied that their business would have that constant supervision and direction which were so essential for complete success—a supervision which it would be impossible for himself to continue to give to the same extent as heretofore in view of his larger interests in America.

The American Westinghouse companies, in return for ordinary shares—which would not receive any dividend until after the preference shares had first had a dividend of 6 per cent.—had already rendered a service or given a value in excess of the par value of these ordinary shares. They had, with other American friends, already paid for about 30 per cent. of the outstanding preference shares; and he was now authorized by the directors of the Westinghouse Electric & Mfg. Company to take so many of the 100,000 new preference shares at par as might not be taken by the other shareholders. The shareholders of the American companies went without dividends for several years, but the result, as measured by present values and dividends, had fully justified their patience.

Of the railroads in this country which were referred to at the meeting last year as having taken steps to use electricity for the working of some of their trains, only one, the Mersey, had so far put its new service into operation. In the United States the results from the use of electricity upon railroads exceeded the most confident predictions. In this connection the passing last session of the Railways (electrical power) act was of the utmost importance. It was with much satisfaction that he was able in connection with this subject to refer to a development by the American Westinghouse Company of the very highest importance—namely, the perfection of a simple and practical alternating current motor whereby single phase alternating currents could be so utilized as to dispense with much complicated machinery, and, by reason of the decreased cost, make more probable the extensive use of electricity by the great railroads. He felt safe in saying that no single step of greater importance in connection with the "electrification" of railroads had ever been made. The single phase alternating current railroad system had been made possible by Chief Engineer Benjamin G. Lamme of the American Westinghouse Company, who had all their plans ready to supply the new form of motors, and had already sent forward the particulars needed by the British company's officials to begin their manufacture at once. The company were making the manufacture of steam turbines a special feature. In the construction of gas engines at their works great progress had already been made. He retained an unabated belief in the prospects of the business, and the board were confident that in due time the shareholders would reap their reward, as in the case of the American companies.

A resolution was passed authorizing the increase of the capital to £3,250,000 by the creation of 100,000 6 per cent. preference shares of £5 each, to rank in all the respects, *pari passu*, with existing preference shares.

The Use of By-Products of Steel Manufacture.

An interesting statement has been made as to the possible advantage which Germany possesses over Great Britain in selling basic slag as manure as the outcome of the Thomas process. Germany is now the greatest producer and consumer of slag. The world's production in 1903 was estimated at about 1,900,000 tons, and of this over 1,000,000 were produced in Germany, and only about 320,000 in Britain, of which more than half were exported. Germany, on the other hand, with a cultivated area less than twice as great as Britain, consumes practically all the slag she produces, or nearly seven times our consumption. Reckoning the selling price of basic slag at \$10 per ton, the value of 1,000,000 tons of this by-product to the German steel manufacturers amounts to \$10,000,000, while British manufacturers benefit through their 320,000 tons only to the extent of \$3,200,000. The

difference of \$6,800,000 would presumably enable the former to do some extensive "dumping" not unprofitably.

Bronze vs. Steel.

An interesting problem has arisen as to the relative merits of bronze and steel for purposes of cannon by the issue of a pamphlet published by the Austrian War Ministry. This pamphlet deals with the new gun for the Austrian artillery, for which a first installment of 15,000,000 kronen is demanded. Austria is now the only country which employs bronze as the material for its heavy guns, and it is the intention of the Government to retain it. The official pamphlet states that this bronze, forged according to a secret process, is equal to nickel steel. Moreover, the cost of the inner tube is three-fifths less than that of the steel tube. Another advantage alleged is that an injured bronze gun can have a new jacket fitted to it, which is impossible with a steel one.

A Big Elevator Contract.

The Underground Electric Railways Company of London have placed a contract for electric elevators for the whole of the Yerkes system of tube railways with the Otis Elevator Company of London. The work will amount in value to about £350,000, this being the largest contract for passenger elevators or lifts which has ever been placed in this country or abroad. The underground stations will be fitted in most cases with four, and in some cases with six, lifts, each capable of raising a load of 10,000 pounds, equivalent to about 65 passengers, at a speed of 200 feet per minute, the shafts varying from 40 to 180 feet in depth. Precautions will be taken to insure the security of the public by the adoption of special safety appliances and of nonflammable material throughout the mechanism and its accessories.

Bridge Building Contracts in View.

The directors of the Midland Railway Company have decided to replace by stronger structures the iron girder bridges between Settle and Carlisle—the company's main line route to Scotland—a distance of over 70 miles. This decision has been reached after a thorough engineering examination of each bridge. It is, of course, due to the utilization of much heavier locomotives, which are twice the weight of the engines worked upon this line when opened for passenger traffic in 1876. Other rolling stock has also been correspondingly increased. The iron girder bridges over this section are numerous, as the line is carried over the beds of the Ribble, Dent and Eden rivers. Even though stonework has been utilized in many viaducts, yet an immense deal of structural steel will be called into requisition.

Speed in Shipbuilding.

The fact that the 16,500-ton battle ships ordered by Japan from the Elswick and Barrow firms are to be built in 18 months from the signing of the contract has caused no little astonishment. Last year a question was asked in the House of Commons as to the time consumed during recent years between the date of the sanction of a battle ship by the House of Commons and her completion. Arnold-Forster replied three years and ten months. So, when a short time ago a writer in the press asserted that in at least two yards a battle ship could be completed, trials included, in 20 months, the statement was met with incredulity. The writer proceeded to say that by due attention to standardization and care to mitigate the limiting factor—which to-day is gun mountings—the largest battle ships could be built in 18 months. The Japanese contracts will fairly test the accuracy of his statements.

Commercial Developments in Japan.

Charles V. Sale of the firm of Frazer & Co. of Yokohama, Kobe and New York, and of Sale & Co. of Yokohama, Kobe and Shanghai, is at present on a visit to this country, returning next month to Japan by way of New York. He has been good enough to tell me of some manufactured products at present in demand in Japan. Several years ago good quantities of railroad material were bought from America, but when the American boom set in the supply stopped, and it is only during the last three or four months that further orders have been placed in America. His firm sell a number of locomotives from time to time to the Japanese Government, and there is

an increasing demand. All kinds of electrical machinery also are being sold in Japan in greatly increased quantities. In bar iron and soft bar steel Belgium and Germany are doing the trade. It is largely a question of price. The trade, however, is rather difficult, owing to the large proportion of varying small sizes.

Mr. Sale thinks that in the near future structural material will be in large demand. It is an earthquake country, and the frame house withstands the motion more readily than do bricks and mortar. Another line in which there is a good opening is that of boring machinery. Japan is developing her resources of precious metals, minerals and oil wells. She has still much to learn, and makers of boring machinery have doubtless much to teach her. Boring machinery has hitherto been largely supplied by Germany. Heavy cranes also can be sold to the Government and to the railroad companies. Speaking generally, American machinery is well represented in Japan, and as the agents are usually placed in a position to quote offhand, they have an advantage over British makers, whose catalogues, if priced, are almost always subject to special terms for each inquiry. Americans have a good chance of increasing their business in various kinds of engines, and there is a good future for hydraulic machinery. Some years ago Japan bought fairly largely of American pig iron, but in one way and another the trade seemed to simmer down. The Japanese are buying a certain number of special Scotch and Cleveland brands, but there is no reason why, if properly worked, American pig iron should not be sold to Japan.

S. G. H.

Senate Committee to Consider Eight-Hour Bill.

WASHINGTON, D. C., February 23, 1904.—The Senate Committee on Education and Labor held a meeting to-day for the purpose of deciding whether the Eight-Hour bill should be taken up by the Senate in advance of action by the House, and, if so, whether hearings should be granted to interested parties. Strong appeals to the committee to give hearings before attempting to report the bill were made by Marshall Cushing, secretary of the National Association of Manufacturers, and Judge J. K. McCammon, representing important iron and steel and shipbuilding interests. The committee afterward in executive session decided to take up the bill and to give hearings thereon in accordance with the following official memorandum given out by Chairman McComas:

"That from this day until Saturday, March 12, 1904, all persons who favor or oppose may submit in writing or print testimony or arguments, statistics or other data relating to Senate bill 489, known as the 'Eight-Hour' bill; and that on Tuesday, March 15, 1904, the committee will proceed to hear oral arguments upon these hearings from the representatives of opponents and friends of the bill, and will then determine the number of days to be given to such oral arguments. All data or testimony must be submitted prior to March 12, 1904. The committee desire to be liberal in hearing arguments on both sides, and will very likely allow several days for argument, but will not consider any testimony which may be submitted later than Saturday, March 12, 1904."

While the manufacturers and employers, who as a class oppose this bill, regret that the Senate should have decided to take it up in advance of action upon it by the House, they are nevertheless gratified that the committee has been induced to grant hearings upon it.

W. L. C.

The Seamless Tube Company of America.—The Seamless Tube Company of America of Pittsburgh will apply for a charter on March 16. The incorporators of the new interest are Edwin Bindley, John Bindley, Wallace H. Rowe, Emil Winter and Willis F. McCook. It will be an identified interest of the Pittsburgh Steel Company, now operating large wire rod, wire and wire nail mills at Monessen, and hoop mills at Glassport, Pa. While nothing official has been given out, it is understood to be the intention of the Seamless Tube Company of America to erect a large plant at Monessen for the manufacture of seamless tubes of all kinds.

Lake Mining Matters.

Shipping Prospects.

DULUTH, MINN., February 20, 1904.—The general consensus of opinion among lake mining men is that the amount of ore to be shipped down the lakes the coming season will be in excess of what has been reported as probable by the producers in session at Cleveland. Everybody recognizes that shipments are to be materially reduced the coming summer, but most do not believe they will fall off 40 per cent. Certainly preparations at the mines are not indicative of any such curtailment, and the best posted men in the trade are of the opinion that things are getting into such shape that more ore than that will be moved.

Whatever may be the outcome, it is very evident that natural conditions are liable to cause a very late opening of navigation this year. The usual period of departure for the lower lakes has been growing constantly earlier of late years, partly on account of the increasing use of larger, heavier and more powerful ships, which have been able to battle with ice and bad weather. But there have been, in the past eight or ten years, no winters in which ice has been a serious menace later than the middle of April; the winters have been generally mild, and no great thickness or extent of ice has formed. This is all changed now. For more than 50 miles out from Duluth at the west end of the lake, and for nearly as many west from Whitefish point, at the east, there is solid ice in one great field. At no point on the north shore of the lake can water be seen, and it is all ice as far as the eye can reach from the outermost headland of Isle Royale. At the entrance to Duluth harbor the ice is 27 to 30 inches thick. Such a field is almost unprecedented, and it is certain that, whatever weather conditions are liable to be from now on, there will be ice about the Lake Superior harbors so late as to prevent anything like an early opening of navigation. Of course, the shipping interests do not care for a long season. With a dearth of iron ore there will be a surfelt of ships, and rates will be only what the shippers care to pay, unless the season can be sufficiently shortened to make up for the diminution of tonnage to be moved. No other commodity can, to any large part, make up for the decline of ore.

The Ore Market.

Mesaba producers are offering a standard 62 per cent. 0.040 ore of good structure at \$3.25, and many of them say that if they cannot get that they will not mine. But there are some producers of large tonnage who mine from open pit properties and whose royalties are based on their tonnage, decreasing with the increase of stuff taken out, who are offering ore at less price, and it is largely these who have made the arrangement of a pool for the year utterly impossible so far. The saving of a possible 5 or 12 cents in royalty seems to be of more importance to some shippers than the saving of a splendid ore that in a few years later may be worth easily 50 cents or \$1 more than it brings now, not to mention the protection from partial demoralization of a large share of the trade. Other Mesaba ores have been bid up to \$2.95 by furnace interests, with about \$2.75 as the actual minimum cost of production for the year; this figure of cost including only 75 cents for mining, which is probably too low. Included also in this cost figure is an estimate of 80 cents a ton for lake haul, which may be a few cents too high this year.

The Mesaba Range.

An important change has been made recently in the agency of a big line of independent Mesaba ore, that of the so-called Sellwood mines, which have been handled at Cleveland in the office of Drake, Bartow & Co. These mines, which have an annual possibility of considerably over 1,000,000 tons, will be handled in the office of Tod, Stambaugh & Co. hereafter.

A diamond drill hole 1068 feet deep has just been sunk in section 3 58-15, eastern Mesaba, for the purpose of determining if it is possible to establish a town site there, or if iron exists in the ground. This hole was especially interesting and valuable in the fact that it cut

700 feet of surface and slate, which latter had little appearance of ferruginosity. Under this were more than 400 feet of ferruginous chert, some of it seamed with narrow horizontal bands of rich hard ore. It has been the contention of the geologists, in their explanations of the method of deposition of Mesaba ores, that the percolating waters did not perform their function of dissolving out the silica in the chert of the ore bearing formation when this chert was overlaid by the carbonaceous slate of the more recent formation. Their theory is that the slates were too impervious to permit the free circulation that has been required. This drill hole seems to make necessary some modification of the theory, for there certainly has been sufficient circulation under a very heavy capping of slate to concentrate ores in at least thin, horizontal seams. But the facts remain, despite this hole, that no ores of economic importance have ever been found on the Mesaba range under any considerable thickness of the true south slates.

Hartley and Congdon have organized the Canisteo Mining Company, and have commenced the development of two properties on the western end of the Mesaba range, in T 56-24, which is in Itasca County, and only five miles east of the Mississippi at Grand Rapids. The significance of the new deal lies in this fact of location. Nothing of commercial value aside from these two properties has yet been opened in that region.

Other Districts.

At the Mansfield mine, near Crystal Falls, Menominee range, they are developing largely in the lower levels, and the mine is looking very well indeed. The shaft is being sunk to the thirteenth level. All drill exploration at Dunn mine has been stopped, drills and all other machinery have been removed from the mine and the shaft is now filling with water. The contract with fee owners required the shaft to be sunk to the 700-foot level, and this was completed. It is supposed that an ore body was located and that when conditions permit the property will be reopened.

Sunday Lake mine, Gogebic range, which closed down in the fall on account of a strike against reduced wages, has resumed operations at the scale promulgated by the company. It was the only iron mine on Lake Superior closed by a strike over reduction of pay.

Explorations are in progress at Red Rock, near Amasa, where indications seems to give promise of ore. At Michigan mine, the other day, the miners quit at night with everything as usual. In the night a rush of water filled the lower levels, and when this was pumped out the bottom level was found filled with a soft, black muck; where it could have come from is a mystery of the mine.

Officers were elected this week for the Lake Superior Iron Company, operating mines at Ishpeming. This company is now owned three-fourths by the Oliver Iron Mining Company and one-fourth by the Cleveland Cliffs Iron Company. Its headquarters are at Duluth, and its officers are the regular list of Oliver officials for subsidiary companies. This company is the oldest mining company on Lake Superior, having been organized in 1853. Its semicentennial was held at Ishpeming last summer.

Copper News.

At Champion copper mine, south of Houghton, there has been a strike of miners on account of a reduction in wages. This strike has resulted in the closing of all mines of the so-called South Range group and a production of more than 30,000,000 pounds a year is stopped temporarily. January was a light month in the production of lake copper on account of the strike at Quincy, and this month will be still smaller unless the present trouble is quickly settled. The South Range group is the second producer in the district.

The Lake Superior Smelting Company, at their Dollar Bay smelter, have been making extensive improvements and are now able to make copper in greater quantity and at a lower price than ever. The company smelt nearly half the production of Lake mines. Tests of the improvements are being made. It is estimated that labor costs are reduced 25 per cent. by the changes that have been made and that fuel consumption is cut 8 per cent., or 50 pounds, for each ton of mineral treated. D. E. W.

Mexican Railway and Industrial Notes.

Railway Concessions and Construction.

DURANGO, February 16, 1904.—The National Tehuantepec Railway, which is leased to the Pearsons of London, according to rumor, is likely to be included in the consolidated system of railways in which the Government is interested.

The concession granted to the Chihuahua & Pacific Railway Company has been extended three years, to enable the company to complete projected lines; 200 km. of road are in operation.

It is proposed to establish a system of electric railways in Merida, the capital of Yucatan. The United Railways of the State are said to have made an offer of \$1,500,000 for the existing tramway system.

A concession has been obtained by the Tlacotepec & Huajuapam de Leon Railway Company to construct a line from San Marcos, Puebla, to Rosendo Marquez, on the Mexican Southern Railway, 55 km. from the capital of the State named.

Ten miles of electric railway are to be constructed to connect the city of Puebla with the town of San Francisco, Teotihuacan.

Recent orders placed for rolling stock include one by the St. Louis, Brownsville & Mexico Railway Company with the American Car & Foundry Company for 200 box cars, 5 passenger coaches, 5 caboose cars and a number of baggage and mail cars. The Mexican Central Railway Company are reported to have made a contract with the American Locomotive Company for a number of locomotives, the amount of money involved being given as \$1,500,000.

Industrial Notes.

Imports of machinery from the United States into Mexico have increased nearly fourfold in the last ten years.

A sugar mill is to be erected upon the Alma plantation, in the State of Vera Cruz, owned by St. Louis people, and managed by G. C. Lamar.

A. H. Howland and Ricardo Collin, of the City of Mexico, have applied to the Government for a concession for the purpose of establishing a factory for the manufacture of tool handles, in which enterprise they intend to invest at least \$100,000.

An expert interested in the sugar manufacturing industry reports great activity in the erecting of new plants in various districts, but complains that "a number of contemplated plants have been abandoned on account of planters being unable to secure the required skilled labor to erect them."

Several large orders for factory equipments are reported as having been booked by local representatives of United States manufacturers of machinery. Among them was one for a complete cotton mill equipment, including a 400 horse-power water wheel; another for a complete wood working plant with a large Corliss engine, and the machinery for a tobacco manufacturing plant.

Orders for tools and appliances have been placed within a short time, as follows: With the Philadelphia Pneumatic Tool Company, Philadelphia, Pa., for a good sized shipment of their specialties; a large order for pumps for mines, with the Fred. M. Prescott Steam Pump Company, Milwaukee, Wis., and for a supply of car registers from the National Cash Register Company, Dayton, O., by their representatives in the capital.

S. W. McMichael, representing the International Steam Pump Company, New York, has been in the republic looking up business.

A smelter is to be built by the United Mexican Mining & Milling Company, Mascota, in the State of Jalisco, at a cost of \$200,000. W. F. Page, the manager, is now in the United States for the purpose of contracting for the plant.

A flour mill of 150 barrels daily capacity is to be erected in Texcoco, State of Mexico, by Señor José de la Horga, who is in the market for the necessary plant.

A contract for mining equipment, consisting of machinery, gas generators and engines, and involving an outlay of \$150,000 gold, is reported as having been made by

the Amparo Mining Company, of the State of Jalisco, with the Power & Mining Machinery Company, New York.

A large number of steel towers will be required by the Mexican Light & Power Company, who are building an important electrical power plant at Nicaxa Falls, in the State of Puebla, and the company will soon place orders for these structures.

The Occidental Smelting & Refining Company, a corporation organized in Oregon, will, according to local report, build a large smelter in the city of Chihuahua, and at a later date a lead refinery.

Current news in connection with the operations of Mexican petroleum prospectors includes an unconfirmed report that the Standard Oil Company have obtained control of the Mexican Petroleum Company, Ebano, near Tampico.

The Oil Fields of Mexico Company, who have offices in New York City and who are operating the State of Vera Cruz, are about to place orders for considerable additional machinery, being much encouraged by their prospects in the field.

Sommer, Hermann & Co., manufacturers' agents, of the City of Mexico, report a largely increased demand for agricultural machinery, which has compelled them to secure more commodious quarters for their stock. They have recently removed their machinery department from the old stand to Calle de la Palma, No. 5, which they intend to remodel by erecting a new building.

The rate of exchange for the liquidation of import duties for the month of February has been fixed at 223 per cent.

The Mexican Coal Company have increased their capital to \$150,000 by the issue of 1000 additional shares at \$100 per share par value.

Paul Bergner & Co. of the City of Mexico have opened a new electrical department in order to supply the increasing demand for electrical appliances and supplies, the same being in charge of O. M. C. Heyl.

Another coal mining enterprise is to be actively pushed, Henry Oliver and associates of Memphis, Tenn., being about to develop a promising property in the State of Vera Cruz, for which purpose machinery will be required.

Some instructive and interesting figures are given by *Modern Mexico* in relation to the rates of wages paid by the Tula Iron Company of Tula, Jalisco, to their employees. The schedule is here reproduced for the information of iron manufacturers in other countries, the rates being in Mexican silver:

Puddlers.....	\$1.58 for 2000 pounds, and all help
Rollers, per day.....	\$0.56
Rollers (second class), per day.....	.34
Bricklayers (chief), per day.....	.28
Bricklayers (assistants), per day.....	.25
Rough rollers, per day.....	.34
Roll turners, per day.....	.45
Labor boss, per day.....	.23
Superintendent machine shop, per day.....	.39
Molders (chief), per day.....	.23 to .34
Furnace keeper, per day.....	.45
Furnace assistant, per day.....	.23
Chargers, per day.....	.20
Common laborers, per day.....	.14
Boys, per day.....	.03 to .08
Clerks, per month.....	18.00
Assistant superintendent, per month.....	27.00
General superintendent, per month.....	90.00

Concessions covering irrigation and motive power privileges have been granted to the following named individuals: Señor José de J. Garcia, to utilize 1500 liters of water per second from the River Laja, San Miguel Allende District, State of Guanajuato, for motive power; F. Brennan, to use 15,000 liters per second from the Rio Grande de Santiago, municipality of Hostotipaquillo, Jalisco, for motive power; Dell Linderman of El Rosario mines, Sinaloa, has applied for permission to use 1000 liters of water per second from the River Plomosas for the same purpose; and Zeferino Romero has obtained a concession to utilize 312 liters per second from the Guayalejo River, in the State of Tamaulipas, for irrigation purposes.

J. J. D.

Some time since the Norwegian Government dispatched an expedition to Spitzbergen in order to inquire

into the value of the coal mines on that island. The expedition has now returned, bringing samples of the coal with it, and the members are of the opinion that the mines would repay exploitation. It is proposed to begin the work next summer.

Scotch Industrial Matters.

General Conditions.

GLASGOW, February 13, 1904.—The sudden, though not unexpected, outbreak of war in the Far East has, of course, disturbed the more or less even tenor of the way of all our markets, but up to the time of writing the actual effect can hardly be defined. Apart from political aspects, the general situation as regards iron and steel presents no very different features from those prevailing at date of my last letter. In some branches one can perceive a rather better feeling; in others a little more despondency.

Ship building is certainly no better here, and although the new contracts booked during January exceeded the tonnage launched in that month by some 10,000 tons, that means nothing because the launches were only some 7400 tons, January always being a short month at the ship yards. On the other hand, the ship yards on the north-east coast of England have been booking a fair number of orders, and have rather a decent amount of work before them. Meanwhile, the contest between the steel makers and the middlemen continues, and the latter are using all their efforts to break down the combine quotations of £5 10s. for ship plates, £5 for angles and £6 for boiler plates, all less 5 per cent.

Sheet makers have reduced their prices for iron and steel sheets $\frac{1}{2}$ to 28 gauge by 2 shillings 6 pence per ton. In the Middlesbrough district ship plate makers have advanced their price to the Scotch level, but with, as usual, only $2\frac{1}{2}$ per cent. discount. Finished iron makers have rather more work on hand, but in very few of the concerns can full time be run. Consumers are only buying pig iron as they want it, and Scotch iron has been sustained by the export demand for Cleveland iron. Your markets are, of course, being carefully watched.

There is naturally a good deal of discussion as to what effect war will have on the trade of this country, and particularly in relation to shipping and coal. The iron and steel trades are not expected to be immediately affected, though we do business with both countries. These industries will benefit most after war is over when navies require to be replenished. Leith does more business with Russia than Glasgow does, and is concerned at the prospects.

The Iron Market.

Up to the outbreak of hostilities there was a fairly strong pig iron market, with an advance of 4 pence per ton in the price of Cleveland last week, though the business in warrants is on a very limited scale. There is an inclination in the Continental trade to buy iron, due to the reports regarding the foundry trade in Germany. The steel trade of Germany, however, has to bear the loss of the large proportion of the British market for tin plate bars and billets taken by American producers. In the home iron trade heavy foundries complain of a scarcity of new work. Connal's Glasgow stock of pig iron is 9070 tons, and the Middlesbrough stock is 104,270 tons, the latter a decrease of 160 tons for the week. The following are current quotations for the various Scotch brands, all No. 1:

	s.	d.		s.	d.
Coltness, No. 1.....	71	0	Eglinton, No. 1.....	52	0
Gartsherrie, No. 1....	58	6	Clyde, No. 1.....	58	0
Summerlee, No. 1.....	59	0	Carnbroe, No. 1.....	52	0
Calder, No. 1.....	58	6	Monkland, No. 1.....	51	6
Langloan, No. 1.....	70	6	Glengarnock, No. 1....	58	6

The Middlesbrough quotations are rather easy, No. 3, g.m.b. Cleveland, pig being offered by merchants at 42 shillings $7\frac{1}{2}$ pence to 42 shillings 9 pence, f.o.b., and buyers not disposed to pay more than 42 shillings 6 pence. No. 1 Cleveland pig is 43 shillings $7\frac{1}{2}$ pence; No. 4 foundry, 42 shillings $4\frac{1}{2}$ pence to 42 shillings 6 pence; gray forge, 42 shillings 3 pence; mottled, 41 shillings $7\frac{1}{2}$ pence, and white, 41 shillings $4\frac{1}{2}$ pence. East Coast hematite pig

is for mixed numbers, 50 shillings 9 pence; No. 1, 51 shillings, and No. 4 forge, 59 shillings. There has been a good demand for steel ship plates and angles in the north-east coast of England within the last few days, and prices are firm, plates being quoted at £5 10s. per ton, and angles at £5; while several orders have been booked for the latter at £5 1s. 3d. per ton. It is anticipated there will soon be an advance in the price of both plates and angles, and in view of this and of inquiries for more new tonnage ship builders are contracting with local rolling mills for forward delivery.

Business in the Barrow district has had rather more life of late, but the production of hematite iron is still restricted. The Barrow Steel Company, Cammell, Laird & Co., and the Moss Bay Iron & Steel Company, Workington, have jointly booked an order for 30,000 tons of steel rails for the Guaranteed Indian State Railways at prices ranging from 95 shillings to 100 shillings per ton, net, f.o.b. This is supplementary to the large Canadian rail orders already reported. The Barrow Steel Company have booked an order for the plates, heavy castings and other material required for the construction of the new Japanese warship to be built by Vickers, Sons & Maxim at Barrow.

In the northwest England district the iron and steel trades show considerable irregularity in prices. Pig iron makers have had to ease down upon their recent nominal quotations, and though 52 shillings might be taken as about the basis for No. 3 foundry, delivered Manchester, they have occasionally to cut considerably below this figure to secure orders. Sellers of American pig iron are scarcely holding to definite quotations, but would give way about 1 shilling per ton upon the basis of a week or so back. Unsatisfactory business is the general report throughout the finished iron trade. In ordinary machine tools there is little doing in the way of new work; the boiler making trade remains without improvement; structural engineering is quietening down, and in the general run of engineering there is comparatively little work of any moment stirring.

In Western Yorkshire, on the other hand, the iron and steel trade has lately shown a tendency to improve. There has been a change in regard to Germany, whose competition in the steel trade is less keen than it has been for some time back, and, although the Belgians are pretty well alive, West Yorkshire iron and steel masters are less downhearted than they were a few weeks ago. The engineering trade has received a stimulus during the past few days, inquiries for locomotives coming in just when orders were being completed. There has been an improvement in the demand for the heavy class of tools made in the district, notwithstanding American competition. Makers of agricultural machinery are fairly well employed, especially for shipment, and gas engineers are also fairly busy.

Shipbuilding.

Quite a number of the engineering firms on the Clyde have applied to the Parsons Marine Steam Turbine Company for licenses to manufacture the Parsons turbine. As yet only one firm here—Denny & Brothers, Dumbarton—is actually working the license. Denny & Brothers are building seven steamers for turbine machinery. Workman, Clark & Co., Belfast, had no license to make turbines when they contracted for the Allan liner "Victorian," but they have one now, and will, therefore, themselves supply the machinery for this vessel. The Parsons Company will supply the machinery for the second turbine liner which the Allan line have placed with Alex. Stephen & Sons, Glasgow.

The type of turbines are nearly all on the lines of that used on the Clyde steamer "Queen Alexandra," having a high pressure cylinder in the center and two low pressure cylinders, one on each side, and one propeller on each of the three shafts. At first the "Queen Alexandra" had two propellers on each of the outside shafts, but the number was reduced to one on each. This reduction was found to have no effect whatever on the speed of the boat or the economy of the turbines, so the propellers were not replaced. The experiment proved that two propellers, working on the same shaft at high speed and near each other, cut up the water at such an extent that their com-

bined efficiency is equal only to that of one working in solid water. The compound turbines have also been found to be superior to triple expansion. If the Cunard Turbine Commission decide on four shafts they will have to recommend an entirely new arrangement of cylinders.

The labor cloud is again lowering over the ship building industry. On the proposed reduction to ship yard workers, the representatives of the Boilermakers' and Iron Shipbuilders' Society have had a conference with the employers, without coming to an agreement, though they have not as yet definitely rejected the proposal. A conference has also been held between representatives of the Clyde Shipbuilders' Association and the Associated Blacksmiths' Society to consider the proposed reduction of piece wages by 5 per cent. On the northeast coast a mass meeting of machine workers, steam engine makers and members of the Amalgamated Society of Engineers of Newcastle and Gateshead was held to consider the proposed reduction in wages. The masters proposed reductions of 2 shillings off wages of 30 shillings and upward; 1 shilling 6 pence off wages between 25 and 30 shillings; 1 shilling off wages of 25 shillings and under, and 5 per cent. off piece rates. By the men it was unanimously decided to resist any reduction in wages whatever.

B. T.

Labor Notes.

Some of the molders employed by the Holyoke Machine Company at Worcester, Mass., have gone on strike because they were notified that for the present they would be put on piece work, owing to the fact that business was duller than it had been, making continuous work by the day impracticable. The company are in no way crippled, because enough molders remain to take care of all present demand upon the foundry.

At the plant of the Parkersburg Iron & Steel Company, Parkersburg, W. Va., the employees that are members of the Amalgamated Association have refused to accept a reduction in wages. The company have secured an injunction to prevent the strikers from molesting the non-union men, and in retaliation the Amalgamated Association is trying to induce some of its members, who are stockholders in the concern, to apply for a receiver. Under the laws of the State of West Virginia three stockholders in any concern can apply for the appointment of a receiver.

J. E. Mills makes several interesting applications of the kinetic theory of gases. By considering the transition from the liquid to the gaseous state in a particular way, an equation is obtained, in which all the quantities are measurable, and it affords an experimental test of the assumption that the molecular attraction varies inversely as the square of the distance from the molecule, and does not vary with the temperature. This assumption is found to be in agreement with the experimental data as tested by the equation. It is further shown in the paper that the molecular attraction differs from the attraction of gravity in being determined primarily by the chemical constitution of the molecule, and not by its mass.

The machinery in the wire and wire nail mills of the American Steel & Wire Company, at New Castle, Pa., is being dismantled and shipped to the Salem works, at Salem, Ohio, and to other places. The New Castle works were formerly operated by the New Castle Wire Nail Company and were absorbed by the American Steel & Wire Company, but were never operated to any extent by the latter.

Nickel steel resists torsion or twisting stress much better than the same class of carbon steels. Riley's experiments indicate that it is not necessary to use steels high in nickel in order to obtain the best effect in torsional resistance. Several French steel works have taken advantage of this property of nickel steel by applying it to the manufacture of special wire and springs.

OBITUARY.

WILLIAM J. HARRIS, a mining engineer, well known in connection with mining interests in Pennsylvania and West Virginia, died suddenly on February 20, in Newark, N. J., aged 64 years.

CHARLES H. DUFFY, long connected with the horse nail trade, died in Chicago on February 13. He was born in Starke County, Ohio, on July 27, 1832. At the age of 13 he ran away from home, and shipped as cabin boy on a sailing vessel bound from New York for Hamburg. After several years at sea and in foreign countries he returned to his own land and secured employment with the Cleveland & Pittsburgh Railroad, resigning that connection to become superintendent of the docks and warehouses of the Northern Transportation Company, Chicago, which position he held from 1854 to 1864. For several years, during the close of navigation, Mr. Duffy visited Europe, and spent the winter months wandering through France, Germany, Switzerland and Northern Italy. Much of his traveling was done on foot. On January 1, 1864, he entered the employ of the Chicago Dock Company as superintendent, and was soon promoted to the office of secretary and treasurer, which positions he filled until his death. He was also general manager of the North Western Horse Nail Mfg. Company from 1886 to 1898, and it was during his connection with the latter company that he formed the acquaintance of many prominent hardware and iron men of the country. He was a member of the old Chicago Volunteer Fire Department, and for over 30 years was a well known and popular member of the Chicago Board of Trade. His widow and three children survive him.

STEPHEN COLVIN, a member of the Colvin family that has been prominent in the New England iron and machinery business for many years, died suddenly at his residence at Riverpoint, R. I., Wednesday, the 17th inst. He was within a few days of 83 years old. He was a native of Rhode Island, and as a young man learned the machinist trade. For many years he was associated with Perez Peck in the management of a machine shop at Anthony. He finally established the Colvin Machine Company at Riverpoint, where he manufactured textile machinery until two years ago. He was well known as an inventor, especially because of a number of loom patents issued upon his inventions.

JEREMIAH HART of the firm of Hart & Dansereau, file manufacturers of Worcester, Mass., died in that city, Sunday, 21st inst., aged 53 years. For a number of years he was a traveling salesman for the Worcester File Company.

CHARLES WELLFORD LEAVITT, the senior member of the iron and steel importing firm of C. W. Leavitt & Co. of New York, died suddenly last week in his sixty-ninth year. Mr. Leavitt was connected for over 25 years with the iron trade, his earlier experience being with the Allentown Rolling Mill. We understand that the business of the firm will be conducted without any change, C. W. Leavitt, Jr., being at its head.

FRANK P. SHEPHERD of Elgin, Ill., a leading hardware dealer in Northern Illinois, died at his home February 13. He was born at Buffalo Grove, Ill., in April, 1841, and educated in the public schools. He enlisted in the Union Army at the commencement of the war, serving from April 19, 1861, to June 30, 1865. His first business was in the hardware line, and he has always followed that or one akin to it, having in late years manufactured an improved milk can, aerator, &c., in Elgin. He is survived by a widow and three daughters.

Spang, Chalfant & Co., Incorporated, operating the Etna Iron & Tube Works of Pittsburgh, Pa., notified their men some time ago of a reduction of wages to correspond with reductions in other plants. The men have refused to accept the lower wages and went on strike, with the result that nonunion men are now being installed in the plant. At the present time their works are in partial operation, but new men are being secured as fast as possible.

Specifications for Pig Iron and Iron Castings.*

BY ROBERT JOB, READING, PA.

Up to five years ago the pig iron used by the Philadelphia & Reading Railway Company had been obtained solely upon the appearance of the fracture, but as the service was unsatisfactory, an investigation was made to determine the quality best adapted to the requirements of the company. It was found in the first place that the proportions of phosphorus and of silicon were high, which resulted in the castings having a rather low tensile strength and being weak under impact. After a study of the quality and conditions of the scrap of the company, as well as of the service desired, specifications were drawn up substantially in the form of those here-with appended, limiting the proportion of phosphorus to 0.5 per cent., and the proportion of silicon to about 1.5 per cent., holding the latter component in practice to about 1.75 per cent. also, as some of the scrap was rather high in sulphur, a minimum of 0.4 per cent. was placed on the manganese content of the pig iron, and ferromanganese was used in the ladle. The result of these changes was to produce a tough close grained, easily machined casting of high resistance under impact.

By the end of the first year after beginning to use this iron the breakages had decreased to such an extent that the company's supply of scrap was largely cut off, and by the end of the second year the supply had decreased to so low a point that it became necessary to get the scrap for the cupola furnace elsewhere, and to purify it by an additional treatment.

Specifications for Iron Castings, Philadelphia & Reading Railway Company.

1. *Physical Requirements.*—All castings must be of uniform quality, and of solid iron free from physical defects and excessive shrinkage strains, finished in a workmanlike manner, free from sand, and in close accordance with drawings. Castings purchased under Class 1 or Class 2 must be of gray iron throughout and easily machined.

2. *Chemical Requirements.*—*Class 1. Medium Iron.*—Engine cylinders, gears, wheel centers, smoke stacks, &c. The iron must be close grained and tough. The composition must be silicon, from 1.4 to 2; sulphur, not exceeding 0.085; manganese, not exceeding 0.7; phosphorus, not exceeding 0.6 per cent.

Class 2. Soft Iron.—Small castings for general car and roadway use. The composition must be silicon, from 2 to 2.8; sulphur, not exceeding 0.085; manganese, not exceeding 0.7; phosphorus, not exceeding 0.6 per cent.

Class 3.—Brake shoes and other castings for frictional wear. The iron must be hard and tough. The composition must be silicon, from 2 to 2.5; sulphur, not exceeding 0.15; manganese, not exceeding 0.7; phosphorus, not exceeding 0.7 per cent.

3. *Method of Inspection.*—Upon receipt of a shipment a thorough inspection will be made, and only those castings will be considered which meet the requirements of Section 1. From such castings borings will be taken from at least one in each 50 or fraction thereof, and the composition must be within the stated limits or the shipment will be rejected.

4. *Rejected Material.*—All rejected material will be returned at the expense of the shipper, and all castings which fail in service owing to defects of manufacture must be replaced free of cost.

Specifications for Pig Iron Superseding Previous Specifications Philadelphia & Reading Railway Company.

1. *Physical Requirements.*—Shipments must be of uniform quality, and free from sand, dirt, slag or other foreign matter. Pigs must be broken, or be of such size as to be easily handled.

2. *Method of Sampling.*—Upon inspection, three pigs will be selected at random from each carload or fraction thereof, and a sample of drillings obtained by boring into the face of a fractured end of each of the three with a blunt, wide angled 2-inch drill, to a depth of not less

than 2 inches, care being taken to have the drillings uniformly fine and free from sand or other foreign matter. The samples from these three pigs will then be thoroughly mixed, and this final sample upon analysis must conform to the following composition or the carload represented will be rejected.

3. *Chemical Composition.*—The chemical composition must be silicon, from 1.5 to 2.5; manganese, from 0.4 to 0.75; phosphorus, not exceeding 0.50; sulphur, not exceeding 0.04 per cent.

4. *Rejection.*—In case of rejection at the shops, the material will be returned at the expense of the shipper.

The National Metal Trades Association.

The following annual district meetings have been arranged for up to date:

District No. 1, March 2, at 2 p. m., Trade Club, Boston, Mass.

District No. 2, March 3, at 2 p. m., Cooley House, Springfield, Mass.

District No. 3, March 2, at 2 p. m., at the Metal Trades Association rooms, New York City.

District No. 4, February 25, 2 p. m., at Yates' Hotel, Syracuse, N. Y.

District No. 5, March 4, 3 p. m., at the Manufacturers' Club, Philadelphia, Pa.

District No. 6, March 3, 2 p. m., at Reed House, Erie, Pa.

District No. 7, March 8, 1.30 p. m., at Cincinnati Metal Trades Association rooms, Cincinnati, Ohio.

District No. 8, March 1, 4 p. m., at Employers' Association rooms, Dayton, Ohio.

District No. 9, March 14, 10 a. m., at Toledo Club, Toledo, Ohio.

District No. 11, March 4, at 2 p. m., at Commercial Electric Company's office, Indianapolis, Ind.

District No. 12, March 1, 2 p. m., at Metal Trades Association rooms, Chicago, Ill.

District No. 13, March 2, 10 a. m., at Employers' Association rooms, Quincy, Ill.

Meetings for other districts have not as yet been arranged for.

From present indications it appears that the convention to be held in Philadelphia on March 23 and 24 will be the most enthusiastic in the history of the association. Papers are being prepared by a number of members well versed upon the several subjects to be discussed. Final arrangements have been concluded with the Walton Hotel for the use of the commodious assembly rooms for the convention, and a special rate of transportation has been secured from the several railroad companies centering in Philadelphia. It has been definitely decided that H. N. Covell of the Lidgerwood Manufacturing Company will preside at the convention.

There will be a foreman's meeting at the Metal Trades rooms on Thursday evening, February 25, at 8 o'clock, at which P. G. March of the Cincinnati Shaper Company and Fred Holz of the Cincinnati Milling Machine Company will read papers on the respective merits of the Shaper and Milling Machine for the special classes of work to which they are best adapted. Sherman Schauer of the Cincinnati Machine Tool Company will read a paper on the advantages of the "Upright" vs. the "Radial" Drill, to which Mr. Norris of the Bickford Drill & Tool Company will exploit the value of the Radial. Following this Phil. Fosdick will give a short talk on "How to Keep Busy in Dull Times." After this George Lang of the Cincinnati Planer Company will make a few remarks on "How Can We Lessen the Time Willfully Lost by Our Men." As these are subjects fraught with interest it is hoped that a full attendance will greet the speakers and that an interesting evening will result.

The Columbus Screw Machine Company, Columbus, Ohio, capitalized at \$15,000, have declared a dividend of 10 per cent. The company were organized about a year ago by members of the Machinists' Union. Joseph B. Foster is general manager.

* A paper presented at the Atlantic City meeting of the American Institute of Mining Engineers.

A Rapid Method for the Determination of Total Sulphur in Iron by Evolution.

BY S. S. KNIGHT, BIRMINGHAM, ALA.

The recent modification of the method for determining sulphur in iron presented by Walters & Miller of Pittsburgh, Pa., had as its principal disadvantages the extraordinarily long time, which they claim would be at least an hour under the most favorable circumstances, to complete a sulphur determination, and also the expensive and unusual apparatus for roasting samples in a current of reducing gases.

In commercial laboratories which are not equipped with this apparatus the recent modification of this roasting process has consisted in roasting the weighed sample for a period of one hour at a slowly increasing temperature. The culmination of this annealing process was the highest heat obtainable before a blast lamp, which was continued for at least 15 minutes. The sample thus roasted was treated as heretofore by the evolution process.

In the laboratory of the Birmingham Pipe & Casting Company, Birmingham, Ala., the writer has been able to get results which check very closely with those obtained by the above described method, and also with those obtained by the barium chloride gravimetric method, by the following process: The weighed sample, which in our case consisted of 2 grammes, was mixed with 1 gramme of the purest iron dust obtainable by hydrogen, and in which the sulphur content had been previously determined. This mixed sample is then placed in a small porcelain crucible and 1 gramme more of the iron by hydrogen is sprinkled over the top so as to form a continuous covering. On top of this is placed a small disk of quantitative filter paper. The lid is then placed on the crucible and this is placed on the triangle over the blast lamp. For ten minutes the highest heat obtainable with the blast lamp is used in roasting this mixture, at the expiration of which time it is allowed to partially cool, and the contents of the crucible are then placed in the ordinary evolution flask and treated with hydrochloric acid, while the evolved gases are washed in any of the common forms of absorption bulbs. The absorbent liquid in our case has been an ammoniacal solution of calcium chloride which was afterward titrated with the iodine solution of known strength. The results obtained by this method are exactly those given by standard gravimetric methods, and also the same as those obtained by Walters & Miller's method, while the time consumed is something less than one-half hour from the time the sample arrives in the laboratory.

It is believed by the writer that the advantage of this modification will be readily appreciated by chemists in charge of commercial laboratories.

The Whitehead Machinery Company, Davenport, Iowa, have opened up an office at 517 Park Building, Pittsburgh, Pa., in order better to take care of their rapidly growing Eastern business. The Pittsburgh office is in charge of H. G. Adams, who, until recently, has been looking after Wickes Brothers' interests in Pittsburgh and the East.

The Bygate-Hugus Coal & Coke Company of Pittsburgh have been incorporated with a capital of \$10,000. The directors are W. Y. Bygate, Charles S. Bygate of Wilkesburg and J. H. Hugus of Pittsburgh.

Arrangements are being made by the Chamber of Commerce of Lorain, Ohio, for a banquet to be tendered soon to William B. Schiller, president of the National Tube Company of Pittsburgh, and several of the leading officials of that concern.

The Chihuahua & Pacific Railroad Company, offices 80 Broadway, New York, are in the market for steel rails and fastenings, switches, switch stands and frogs, structural steel for bridges, iron pipe for culverts, and telegraph and other material for use in new construction in Mexico.

Frozen Coal and Ore in Open Cars.

A winter having many spells of warm and wet weather, followed by cold, is particularly hard on all those having to do with material shipped in bulk in open cars. A rain, or wet snow, converts the mass into a solid chunk in which all voids are filled with ice, and which, before it can be unloaded, must be either broken or thawed out. Either of these operations increases the cost considerably, and causes delay which is vexatious and also costly.

The present winter has been especially severe in the Middle and Northern States upon coal dealers and consumers. There have been frequent, though brief, periods of wet weather, just sufficient to thoroughly saturate the coal in an open car and transform it into a mass perfectly adapted to be solidified by frost. In this condition it is delivered to the yard, and from thence to the cellar of the householder, or the boiler floor of the factory—wet, dirty and in chunks.

The dealer has the most serious question confronting him since he must break up the coal by hand. This is often a hard job, requiring the services of two or three men for several hours. His bins are dry, but as it is not possible to sift small coal in lumps he delivers it as it is, and explains to his customer as best he may.

The great coal terminals are more fortunate. Some of them have provided either permanent or portable steam supply, by means of which live steam can be admitted to the frozen mass. Locomotives have been used successfully for this purpose. But with every appliance most readily available, it is a tremendous task to thaw out a train of 1000 tons of coal.

Iron ore sent out in open cars is subject to the same influence, but not so much is heard about it because the handlers and consumers are so few in comparison with those interested in coal. At terminal points on the ore roads attempts have been made to lessen the trouble, but apparently little or no thought has been directed toward the root of the evil. At one point on the lakes expensive apparatus has been installed to break up the frozen ore. This proves the importance of the problem.

Yet in neither the case of coal nor ore has much effort been made to keep out the water in the first place. The ordinary closed car is not suitable for the purpose, as it cannot be either conveniently loaded or unloaded. The same type of car with a movable roof is clumsy and inappropriate. The ordinary coal car provided with a roof that would in no way interfere with the present methods of loading at the mines might at least mitigate the evil.

But if a car perfectly adapted to the purpose should appear—would it be used? The mine operator loads the full weight of coal into the cars provided for him and sends them on their journey. His responsibility, as far as the transaction is concerned, has ceased. The railroad hauls the cars to their destination and delivers them upon the siding. The railroad is not answerable for the condition in which the coal is delivered nor the weight of coal delivered. The company use every reasonable precaution to prevent stealing in transit, but they are not vitally concerned with regard to the quantity they received from the mine operator or the quantity they delivered to the customer. Two of the factors of the problem are thus disposed of as not being party to the suit, so to speak. The dealer, therefore, is the big item in the affair. He wants his coal in his yard in full weight and in such shape that he can easily handle it. He would pay a nominal sum per ton for dry coal, but to whom could he pay it? As a business proposition the railroads and mine owners are mixed to a more than considerable degree, and the dealer would be in a quandary as to whom to offer his money even if he knew he might be benefited if either would accept. The dealer, as an individual, cannot afford to equip or build his own cars, even if he would be allowed to do so, and even if he knew how to solve the difficulty. He wants a reform in which his partners, infinitely more powerful than he, are not so very much interested. It would therefore seem to be his best policy to make it to their advantage to help him if possible.

PERSONAL.

Gustave Asbeck, chief engineer of the Sack Machine Company of Duesseldorf-Rath, Germany, is now in this country.

Rufus C. Crawford, for some years auditor of the National Tube Company, at McKeesport, Pa., has resigned. He will be succeeded by S. H. Fox of the Riverside plant of that concern. Mr. Crawford resigned to give his entire attention to private interests.

J. P. Shaddick has resigned as superintendent of the 128 and 130 inch mills of the Homestead plant of the Carnegie Steel Company.

W. E. Corey, president of the United States Steel Corporation, returned last week from a brief trip to Europe.

Thomas J. Neacy, president of the Filer & Stowell Company of Milwaukee, has been elected president of a newly organized Voters' League in that city. Mr. Neacy was a member of a grand jury which recently returned several indictments against Milwaukee public officials.

E. C. De Wolfe, mechanical editor of *The Iron Age*, has established himself in partnership with O. W. Russell, under the style of the Russell-De Wolfe Company, with headquarters at 355 Dearborn street, Chicago.

Alfred Noble, past president of the American Society of Civil Engineers, and W. B. Parsons, engineer of the New York Subway, have been appointed members of the Panama Canal Commission.

The Citizens' Industrial Association.

The Citizens' Industrial Association of America held its first regular convention at Indianapolis this week, opening on Monday. The organization, which was formed in Chicago last October, has for its object the federating of all local and State bodies which aim to meet and remedy existing labor conditions. President D. M. Parry made a noteworthy address, his theme being "Freedom of Contract." He spoke at some length of the various phases of the work that the national association should perform. It should be the first object of the Citizens' Industrial Association to carry on an adequate educational propaganda, to the end that the public may come to a thorough understanding of the true nature of the "strike societies" and their detrimental effects upon the interests of all classes, including even those of labor. Another function of the association was that of directing campaigns against iniquitous legislation proposed by organized labor. He hoped the time would come when the Citizens' Industrial Association will be able to look out for the interests of the employers and good citizenship of the country, not only at Washington, but at every State capital.

A number of important resolutions were adopted warmly condemning the Eight-Hour and Anti-Injunction bills, and declaring the demand of the unions for the union label on public printing to be a discrimination against the people. Another resolution virtually pledged to the bituminous coal operators the assistance of the association if a strike is ordered by the United Mine Workers. It was declared that the open shop should obtain in the coal mines of the country as well as everywhere else.

At Pittsburgh the McClintic-Marshall Construction Company have begun proceedings in the courts against the Clairton Steel Company and William G. Park and the Union Trust Company, receiver, to recover on a mechanic's lien amounting to \$41,589.57, alleged to be due for services and material furnished.

Clinton furnace, of the Clinton Iron & Steel Company, on the South Side, Pittsburgh, which has been idle for some months, was blown in last week. The stack has been relined and extensively repaired.

The Massillon Iron & Steel Company, Massillon, Ohio, manufacturers of cast iron pipe and fittings, have increased their capital stock from \$150,000 to \$500,000.

The Allis-Chalmers Company.

The Allis-Chalmers Company, Chicago, Ill., officially announce the completion of final arrangements whereby they have embarked in the manufacture of steam turbines, hydraulic machinery, gas engines and electrical machinery in connection with their regular well known line of Corliss engines, pumps, compressors, &c., and they are now ready to estimate on and to accept contracts for complete power plants of all descriptions. They have become associated with the Steam Turbine Advisory Syndicate of England, which is composed of the Yarrow Shipbuilding Company, Tweedie Shipbuilding Company and Willans & Robinson. Mr. Fullager, formerly chief engineer of the Parsons Steam Turbine Company, is now consulting engineer of the Steam Turbine Advisory Syndicate. From this syndicate the company have been conceded the rights to manufacture and sell the steam turbine in the United States, Canada and Mexico, with equal rights and privileges in South America and elsewhere in the Western Hemisphere.

The turbine which the Allis-Chalmers Company are to manufacture is of the horizontal type, which is the type Parsons of England and Brown Boverie of Switzerland manufacture. They are convinced after an investigation by their engineering staff in Europe and elsewhere extending over a period of two years that they have a steam turbine that is at least in efficiency and economy equal to the best make of Parsons or Curtis, which are the two types most known. They are now prepared to enter into the building of steam turbines of the following sizes: 500, 750, 1000, 1500 and 5000 kw., which is said to be the largest size that has ever been built of any type of turbine. They are prepared, if required, to build up to units of 10,000 kw.

They have also concluded arrangements with Escher-Wyss & Co. of Zurich, Switzerland, whereby they become the sole licenses for the Western Hemisphere of their famous hydraulic machinery, several types of which have been installed at the Niagara Falls plant of the Cataract Construction Company, aggregating 85,000 horse-power.

By purchase of the American patents the Allis Company have become sole licensees for the Western Hemisphere of the Nurnberg Machine Company, Nurnberg, Germany, for their gas engines, and are now prepared to make gas engines up to any required horse-power, though at the present time they are building gas engines from 250 to 1500 horse-power. These engines are suitable for producer gas or taking the waste gas from blast furnaces and utilizing it with economy and efficiency. The engine is not an experiment, but engines of 1500 horse-power are now in operation in Germany. It is a prime mover, either for blowing engines in blast furnaces, or for direct connected dynamos in generating electricity, or for any other purpose where power is required.

John F. Kelly, formerly of the Stanley Electric Company, and at present the head of the John F. Kelly Engineering Company, New York, will have charge of the electrical department. William Stanley, also lately with the Stanley Company, will be consulting engineer, and John H. Kelman superintendent. In addition others of the late Stanley Company's staff have been engaged, as well as many from the best electrical establishments in this country and Europe.

The Oil Well Supply Company of Pittsburgh advise us that they are having a steady trade with Mexico and the Dutch Indies for oil well supplies of various kinds.

It is probable that the Republic Iron & Steel Company will dismantle their mills at Sharon, Pa. They have been idle for more than a year and are not regarded as strictly modern plants.

At Pittsburgh the Mercantile Trust Company have been appointed receivers for the Duquesne Engineering Company of that city.

Creditors of the Pittsburgh Engineering Company, Frick Building, Pittsburgh, have applied for a receiver, and A. L. Schultz has been appointed by the courts.

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE,
NORFOLK ST., LONDON, W. C., February 13, 1904.

The Week's Hardware Trade.

TRADE still continues dull. Having said this, there is really but little to add. The shipping season is again upon us, but nothing comes of it. The war in the Far East has temporarily paralyzed two important markets, and deepened the reluctance of investors to embark in new enterprises. The situation in Lancashire is, however, vastly improved by the break-up of the cotton corner. It is hoped that with a supply of cheap raw material the Lancashire cotton trade will resume its old activity, so that there may be a considerable stimulation of the purchasing capacity of this highly congested area, populated as it is with regular wage earners. Mild weather continues—too much rain for comfort—and this is favorable to the continuance of building operations.

The shrinkage of our trade with South Africa, to which I have several times made allusion recently, continues. At the present moment commercially things seem to be going from bad to worse in that unfortunate country. *Per contra*, there is a marked revival in orders from Australia, New Zealand, India and China, while a feature of trade just now is the expansion of business with Argentina, Chile and Brazil. Orders from France and Germany show a reduction, and there is not much doing with Canada, Turkey or Egypt.

Among the departments showing some improvement is that of the Chandellers and Gas Fittings. The Cycle trade recovers slowly from its winter sleep, but Motor Cycles and Motor Cars are in brisk request. The Edge Tool trade has benefited by good orders from South America and India.

In the Silver and Electro-Plating industry the dominant feature is the continued deadness of the London market, which never seems to have recovered the elasticity it had up to the time of the war. Travelers are now out on their new year's rounds, and the full results are not yet to hand, but there is no doubt about the discouraging complexion of business in what has hitherto been considered the principal home market. On the other hand, better things are reported from the provincial centers. Among Colonial markets there has been a noticeable recovery in Australia.

C. O. D. in Germany.

The agitation here for and against the C. O. D. system is developing a good supply of interesting information upon the subject. Not the least suggestive comes from Germany, where the idea has been in operation for half a century. It is as much a part of the postal work of the country as the collection and delivery of letters and parcels and the business in postal orders, and is regarded by the public at large as a natural development of the work of the department, and as almost a necessity of commercial life. The system is simplicity itself, and works without a hitch. Every ordinary post office in the country is fully equipped for the business, and there are no unnecessary regulations or delays either to complicate matters or to render the system unpopular. Briefly stated, the procedure is as follows: The tradesman on receipt of his order from a customer sends his parcel to the nearest post office, and takes out a "Nachnahme" for the value of his parcel. "Nachnahme" has no English equivalent, but it may be translated as "Reimbursement," and is the document which the post office gives you guaranteeing that they will give you back your goods or their value. The charge for this "Nachnahme" is in all cases 10 pfennige, or 2 cents, and the scale of charges for the transport of C. O. D. parcels is exactly the same as the tariff for ordinary parcels. The post office will not undertake to collect and dispatch sums over 800 marks. When the "Nachnahme" system was first introduced into Germany the cry was raised that it would result in dislocating the trade of small towns and country places. No one

dreams of raising this objection now. As a matter of fact the system has acted as a spur to country traders to supply their local customers with the best goods and at prices to compete with town prices. Besides, country traders themselves often reap a direct advantage from the "Nachnahme" system, in that they can do business in an easy and convenient fashion with town customers in need of country produce. There can be no doubt that the C. O. D. system in Germany has been beneficial all round, benefiting town and country alike, the small trader as well as the large.

Price Maintenance and the Co-Operative Stores.

An interesting law case has been settled this week, and although it does not specifically refer to Hardware goods, yet has a vital bearing upon the relations existing between co-operative stores and manufacturers or jobbers. The plaintiffs are the proprietors of the well-known Fels-Naphtha Soap, an article which, by the way, they are now advertising in the Hardware trade journals. Joseph Fels, the chief proprietor, a gentleman well known in Philadelphia, and who combines in this country successful business with much philanthropic work, is a stout upholder of the principle of price maintenance. He sells his Soap on an agreement not to cut price to the retailer, and refuses to sell it unless it is retailed over the counter at not less than 5 cents a bar. The defendants undertook, in the event of breach of this agreement, to pay 20 guineas "by way of liquidated damages, and not in the nature of a penalty," for each occasion. In the course of their business they supplied the Staveley Co-Operative Company with three consignments of Fels-Naphtha Soap, and plaintiffs complained that in consequence they had been guilty of breaches of the agreement, because that society shared its profits with its members. It appeared that the latter were bound to have a share in the company, and that when they made purchases they were given metal discs representing the value of the goods bought. Every half year these tokens were surrendered, and in exchange for every pound's worth the member received 2 shillings and 6 pence or 2 shillings and 8 pence. This the plaintiff company said resulted in their Soap being retailed at less than 5 cents a bar, and they, therefore, brought the action, which the County Court Judge dismissed. Appeal was made to the higher courts, and without calling upon the respondents it was ruled that as the members of the Co-Operative Company had to possess a £1 share they came within the category of shareholders, and were therefore entitled to the residual profits being divisible among them in proportion to their purchases. The defendants had not, therefore, broken the agreement by supplying the Co-Operative Company, as the latter had not sold the Soap below the stipulated price, even though its shareholders obtained the Soap at less than the stipulated price. This judgment, of course, applies to various Hardware goods which are now being sold on price maintenance agreements. It now remains to be seen whether those wholesale houses who are determined to maintain the system will specifically exclude co-operative stores from obtaining their goods. If this should happen, we are in for a big fight. Inasmuch, however, as the co-operative stores have plenty of capital, it is doubtful whether they would submit to exclusion. They would probably put down their own plant.

GARLAND NUT & RIVET COMPANY.

THE GARLAND NUT & RIVET COMPANY, with offices in the Frick Building, Pittsburgh, advise us that their new works at West Pittsburgh are now running full. They are making a complete line of rivets from 5/8-inch in diameter down to the smallest size. They are also making Cold Pressed Nuts, Plain or Chamfered, Trimmed and Reamed, Square or Hexagon, Blank or Tapped. This new plant is modern in every particular, the building being of brick and steel construction, and the latest improved machinery has been installed. Hendricks & Class, 150 Nassau street, New York, are the Eastern representatives of the company.

HARDWARE.

FEBRUARY is amply vindicating its title as the CONVENTION MONTH, in view of the fact that during this month so many State Hardware associations hold their sessions. The condition of things is perhaps best illustrated in the fact that in our last issue there were more or less complete reports, with papers, telegraphic advices, &c., of the meetings of retail Hardware associations in the following States: Colorado, Pennsylvania, Indiana, Nebraska and Iowa. The prominence of the month in this regard is further emphasized by the enumeration of the following States, whose conventions are held the present week: Illinois, Missouri, Ohio and Minnesota. It is evident that the organization movement among retail merchants is getting under way with a momentum and impressiveness which did not characterize it a few years ago. When 5000 Hardwaremen are thus organized in various State associations and find a fitting representation of their united interests in the National Association, made up of delegates from the various States, it is obvious that the movement can no longer be ignored or decried by those who were disposed at the outset to make light of it, and even pointed out that it would be impossible to bring the retail merchants together on a practical working basis. The quality of the houses thus associated is an additional reason why both manufacturers and jobbers should recognize the movement as entitled to their best consideration. This development is the more gratifying to those who desire the welfare of the trade at large without reference to the advancement of any one branch of it, because those in charge of the interests of retail Hardware organization have been eminently conservative and judicious, and indisposed to use the power of the organization, of which, indeed, they seem as yet scarcely conscious, in a dictatorial or unreasoning manner, but rather in such a way as to promote fraternal and harmonious relations between themselves and the manufacturers and jobbers from whom they purchase their goods.

A marked advance in trade practice during the past year was achieved in the presence of the representatives of the National Retail Hardware Dealers' Association to attend the gatherings of manufacturers and jobbers at Atlantic City last November. The action of the manufacturers in first inviting the retail representatives, which was seconded by the jobbers, was a precedent, the following of which in future gatherings of like character will certainly make for a good understanding between the various departments of the trade. It is on the face of it reasonable that the interests of retail merchants should be considered in connection with those of the other great branches, and that the representatives of the retail trade should be in attendance at the open sessions, in which the larger trade questions are considered. This can be done without intrusion on the executive sessions, in which each class of trade would naturally and very properly desire to have only its own members present.

In the judgment of the better part of the retail merchants, the progressive and enterprising houses who have relations with both jobbers and manufacturers and recognize the desirability of the continuance of such relations in a kindly spirit, such a representation of retail interests at the great conventions would conduce to a better understanding of the retailer's position and needs, and at the same time to the cordial good feeling which should prevail. The spirit of the great mass of the dis-

tributors of Hardware, those upon whom both manufacturers and jobbers rely for putting their goods into the hands of consumers, is undoubtedly reflected in the following resolution adopted at the late meeting of the Pennsylvania Association:

Resolved, That this association puts on record its hearty approval of the manner in which the interests of the retail trade were represented by W. P. Bogardus and M. L. Corey at the meeting of the National Hardware Association at Atlantic City last November.

Resolved, That this association, recognizing the advantages which result from the conferences of jobbers and manufacturers, expresses its conviction that the interest not only of the retail trade but of the trade at large would be promoted if the National Retail Hardware Dealers' Association should be represented regularly at such gatherings with a view to giving information and using its influence in matters in which the retail trade is concerned.

Similar expressions have been made by other associations and a general sentiment thus finds voice. The ideal in trade conferences would certainly be the consulting together of manufacturers, jobbers and retailers in regard to the things in which they have common interest. It would appear a little ungracious if the retailers were left out in the cold.

The work of the retail Hardware associations, like that of the jobbers of the National Hardware Association at the outset, is largely educational, as the endeavor is made to cultivate correct and enterprising methods in the conduct of business. This is forcibly illustrated in many of the papers presented in this and former issues, containing the reports of the proceedings of the State associations. The stimulating character of the questions considered is well shown in the way in which merchants in the Iowa Association were encouraged to look practically at the sale of lines of goods not always carried in Hardware stores, but which are more and more taking their place in this channel of distribution. The titles of some of these papers sufficiently enforce the point:

Why FIELD FENCING Should be Handled by Hardware Dealers.

STOVES—Shall We Let this Department of Our Business Go Into the Hands of the Instalment Houses?

PAINTS—Why this Business Belongs to the Hardware Dealer.

How to Make the FIELD and GARDEN SEED Department of Your Business Profitable.

Can FURNACES be Successfully Handled in a Hardware Store?

HARDWARE and HARNESS.

HAY TOOLS in a Hardware Store.

In other States practical questions of a different character were taken up. In this feature of the retail organization movement there is an explanation, in part at least, of the enthusiastic interest which up to date merchants take in their trade gatherings, and a reason why the associations when once established and well conducted are increasingly successful. Their educational work, as well as their defensive work, justifies their existence.

Condition of Trade.

A somewhat general feeling exists among manufacturers and jobbers that the outlook for a profitable business is excellent, unless some unforeseen change in prospective conditions occurs. Jobbers' orders have been along conservative lines, indicating a replenishing and sorting up of stocks after inventory taking. A compari-

son of the present market with that of two or three months ago shows an increased stability reflected by a hardening of prices, not so much in the way of advances as in the apparent confidence of buyers, and less of an inclination on their part to anticipate declines. While it is too early to expect the placing of orders for fall goods, inquiries are being received by manufacturers.

Chicago.

The tendency in all Hardware lines is a strengthening in price, owing to the continued good demand. Carriage Bolts have been advanced in price. Wire Cloth has been advanced to \$1.30 per 100 square feet, and but little is obtainable even at this price, as the indications are that the supply will not be adequate to meet the demand. Poultry Netting is strong. Wire Fencing, both Barbed and Woven, is in active demand, with a feeling that prices will be higher before they are lower. Sheet Zinc has been advanced, and from store, Chicago, is selling at 6.10 cents per pound in 600-pound casks. The widespread and active demand for Mechanics' Tools is taken as an indication that building operations will be carried on extensively this spring, and that Builders' Hardware will continue to be a good seller. Not much immediate business is looked for in Builders' Hardware, because all the largest buyers of this material were given an opportunity of stocking up before the recent 10 per cent. advance went into effect, and their purchases have been extremely heavy. This is particularly true of the cheaper grades, as finer grades are not ordinarily carried in stock. The idea prevails that manufacturers of Builders' Hardware have so loaded up with these stock orders on the cheaper grades that they will have difficulty in executing orders for the finer goods when they come in a little later. Actual trading in Hardware lines is a little quiet this week, due partially to the cold weather and partially, no doubt, to the fact that so many proprietors of Hardware stores are absent from their places of business to attend the various dealers' conventions. On the other hand, the exhibitors at these conventions are elated at the unusual number of orders which they took as a result of their displays. This is particularly true of the Stove exhibitors, and the outlook is for large sales this season.

NOTES ON PRICES.

Wire Nails.—The frequency of the report of an advance in the price of Wire Nails and Wire products, which has appeared in the daily press during the past two weeks, has impressed the trade with the possibility of an advance. The result of these reports has had the effect of imparting a firm tone to the market. The demand continues large, with delays in delivery more or less frequent because of heavy business and shortage of cars. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in ten days:

Jobbers, carload lots.....	\$1.90
Retailers, carload lots.....	1.95
Retailers, less than carload lots.....	2.05

New York.—The demand in the local market continues moderate, without prospect of material improvement until the weather becomes more settled. The market is firm in tone, at the following quotations: Single carloads, \$2.05; small lots from store, \$2.15.

Chicago, by Telegraph.—Again it is necessary to deny published reports of an advance in price of Wire Nails, though it is entirely possible that an extra \$1 per ton is being offered on the part of buyers who wish earlier delivery than the conditions of the mills would otherwise warrant. Prices made by the leading producer and concurred in by the majority of the independents remain unchanged as follows: Carload lots to jobbers, \$2.05 per 100 pounds, Chicago; less than carload lots, \$2.15; car lots to retailers, \$2.10, all f.o.b. Chicago.

Pittsburgh.—While no formal advance has as yet been made in price of Wire Nails by the leading interest, it is a fact that several mills that are sold up for some months are now quoting \$1.90 minimum for Wire Nails in car-

loads to the large trade. Demand continues very heavy and shipments from the mills are not as prompt as desired, owing to crowded condition of their order books and delay in getting cars promptly. We quote Wire Nails at \$1.85 in carloads to jobbers; \$1.90 in carloads to retailers, and \$2 in small lots to retailers, all f.o.b. Pittsburgh, 60 days, or 2 per cent. for cash in 10 days, plus actual rate of freight to point of delivery.

Cut Nails.—The Cut Nail Association do not anticipate holding another meeting before the end of March. There is an improvement in demand, both because of the comparative low price and prompter shipments. Quotations on Steel and Iron Nails, in all quarters, are as follows: \$1.70, base, in carloads, and \$1.75 in less than carloads, f.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination; terms, 60 days, less 2 per cent. off in 10 days.

New York.—Cut Nails are moving fairly well considering the season. The market is firm at the following quotations: Carloads on dock, \$1.84½; less than carloads on dock, \$1.92½; small lots from store, \$2.

Chicago, by Telegraph.—The Cut Nail shares in the activity of the Wire Nail, and there is a tendency in many parts of the country to prefer the Iron Cut Nail to the Steel Wire Nail for roofing and other purposes where the nail head is subjected to immediate contact with the elements. Cut Nails are also preferred by many contractors for flooring. Aside from this, the facts that Cut Nails are sold in this market at 10 cents less than the Wire Nails and that deliveries on Cut Nails are more prompt than on Wire Nails help to stimulate business in this commodity. Both Steel and Iron Cut Nails are sold at the following prices: To jobbers, carload lots, \$1.86½, base, Chicago; less than car lots, \$1.91½, base, with the understanding that consumers and retailers are to be charged 10 cents advance over these prices. Jobbers are charging \$2.10, base, from store in small lots.

Pittsburgh.—The fact that Cut Nails are now 15 cents a keg lower than Wire Nails is causing some consumers of the latter to buy Cut Nails, owing to the saving in price, and this is stimulating demand considerably. A shortage in the supply of Steel has developed, and this, with the fact that cars cannot always be obtained promptly, sometimes causes delay in deliveries. We quote Steel and Iron Cut Nails at \$1.70, base, in carloads, and \$1.75 in less than carloads, f.o.b. mill, terms 60 days, less 2 per cent. off in 10 days.

Barb Wire.—Notwithstanding the large volume of business already booked by the mills, new orders are being received for considerable quantities of Barb Wire. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$2.20	\$2.50
Retailers, carload lots.....	2.25	2.55
Retailers, less than carload lots.....	2.35	2.65

Chicago, by Telegraph.—Business continues to come in at a lively rate, and many shrewd buyers are covering their needs as far into the future as mills will permit. Prices remain unchanged, as follows: Painted Barb Wire, \$2.35 per 100 pounds, f.o.b. cars, Chicago, to jobbers; Galvanized, 30 cents higher. Prices to retailers 5 cents per 100 pounds higher than to jobbers in car lots and 15 cents in less than car lots; Staples, \$2.20, Chicago, for Plain, and \$2.60 for Galvanized to jobbers, with 5 cents advance to retailers.

Pittsburgh.—The mills have already a very large tonnage on their books, and orders are coming in liberally. There is some delay in making prompt shipments, and this promises to increase if the present heavy demand keeps up. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$2.20	\$2.50
Retailers, carload lots.....	2.25	2.55
Retailers, less than carload lots.....	2.35	2.65

Smooth Fence Wire.—Mills are in receipt of heavy orders in addition to the large volume of business on their books. Quotations are as follows, f.o.b. Pittsburgh; terms, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....\$1.85
 Retailers, carloads..... 1.90
 Less than carloads..... 2.00

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized...\$0.30	.35	.40	.45	.55	.65	1.05	1.15		

Chicago, by Telegraph.—No let up in the demand for Smooth Wire is reported by either the leading producer or independent interests. Prices remain unchanged, as follows: Base sizes, 6 to 9, \$1.95 per 100 pounds in car lots to jobbers, f.o.b. Chicago; \$2 per 100 pounds to retailers in car lots, and \$2.05 in less than car lots.

Pittsburgh.—The mills have a very heavy tonnage on their books, and, with orders piling in, are already somewhat behind in delivery. Prices are very firm, and an advance is expected in the very near future. We quote as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days: Plain Wire, \$1.80, base, for Nos. 6 to 9, in carloads to jobbers, and \$1.90 to \$1.95 in small lots to retailers; Galvanized, 30 cents extra for Nos. 6 to 14.

Common Carriage Bolts.—The manufacturers of Bolts, Nuts, &c., at a meeting held February 17, made a slight advance in some varieties of common Carriage Bolts, those with rolled threads being left as formerly—at 75 and 10 per cent. discount. The new prices are as follows: Common Carriage Bolts smaller in length and diameter than $\frac{3}{8}$ x 6 inches, 75 and 5 per cent. discount; longer lengths and greater diameters than $\frac{3}{8}$ x 6, 75 per cent. discount. The manufacturers of this line report a firmer market with a good demand.

Sheet Zinc.—Under date of February 17, Matthiessen & Hegeler Zinc Company, La Salle, Ill., announce an advance in the price of Sheet Zinc. The price is now \$5.90 per 100 pounds in 600 pound casks, subject to the usual discount in quantities.

Wire Rope.—The Wire Rope market continues uneven, some of the manufacturers quoting, as heretofore, less than the regular prices.

Cordage.—The Rope market is showing unusual strength for the season. There has been a movement on foot among the Eastern manufacturers to advance the price of pure Manila Rope $\frac{1}{2}$ cent per pound, and 12 cents is now being generally quoted. Rebates from $\frac{1}{4}$ to $\frac{1}{2}$ cent per pound are made to the largest buyers. Mixed Sisal Rope is very firm at 8 cents, with no rebate. Quotations are as follows: On the basis of 7-16 inch diameter and larger, Pure Manila, 12 cents; second grade Manila, 10½ to 11 cents; Pure Sisal, 9¼ cents; Mixed Sisal, 8 cents per pound.

Glass.—After a protracted meeting held last week the wage and executive committees of one of the two Window Glass workers' organizations announced that they had decided to reduce wages. The new scale applies only to the factories manned by members of this organization, except those which are being operated on the profit sharing basis. It is understood that this reduction was made in wages to induce manufacturers who have put out fires, or who are temporarily idle, to start up again. It is reported that the other workers' association has not decided what action they will take in the matter. Some Western jobbers are quoting 90 and 15 per cent. from list of October 1, 1903, f.o.b. cars, which is an advance over their former prices.

Oils.—No improvement in demand shows itself in the local market, orders covering only immediate requirements and confined to small lots. The prospect of better weather may have the effect of increasing the demand. Quotations are as follows: City Raw, in lots of five barrels or more, 42 cents; in lots of less than five barrels, 43 cents per gallon; State and Western Raw, 39 to 41 cents per gallon. Boiled Oil, the usual 2 cents advance per gallon over Raw.

Spirits Turpentine.—The lack of demand at Southern markets and at this point has caused a drop in prices during the week. Buyers have held off and local demand has only been for small lots. The feeling, more or less

general, is that a weak or declining market is more probable than an advancing one, unless conditions improve, as a large supply of Turpentine is held in the South, with the new crop expected within a month or so. Quotations, according to quantity, in this city are as follows: Oil barrels, 64 to 64½ cents; machine made barrels, 64½ to 65 cents.

HARDWARE STORE WINDOW DISPLAY.

BY ROBERT ST. CLAIR.

DIRECTIONS for getting up a good show window are like the well-known recipe for making rabbit soup: "First, catch the rabbit." To have a good window display we must, first, have a good window and favorable light. Confusion of light from rear and front will have a bad effect from the outside, unless the passerby has his nose against the glass. Pass up and down upon the sidewalk, and see that the base for your display is neither too high nor too low. If it has too much rear light elevate the rear or inside part of the base, and cover with light drab or gray goods. Woolen is much the best, as it is not likely to fade. If all conditions are favorable—that is to say, you have a good window—the rear light not too strong for the front, and no reflections, the base may be level and covered with any colored goods according to fancy.

The Window Must Be Well Lighted.

It is not to be supposed that any one can tell exactly what class of goods is best to display in the windows of a Hardware store, as that is a matter that will be governed by the class of trade tributary to such store, but whatever is placed in the windows should be put there as much as possible after business hours, and kept well lighted throughout the night. If the electric or other lamps can be at least partially secreted by a large Feather Duster or some other device, so much the better, as some bright article in the display will take up the reflection and be the "shining mark" or central figure.

Put the Best Goods in the Window.

When one gets the window prepared as to base, covering and light, the next question is what to put in it? Upon this there seems to be a great diversity of opinion, or no opinion at all, as some windows would indicate. To arrange a display window so as to attract attention there must be something more about it than a lot of goods, simply piled up in profusion. If you handle good goods put some of the best you have in the window.

A Cutlery Stand.

Inexpensive and catchy receptacles for displaying fine Cutlery can be made by taking pieces of any kind of well seasoned board from 15 to 30 inches square. Cut it in the shape of a shield. By a small Hinge on the back fasten a wooden brace to hold it at any angle you may wish to set it. Put a light layer of cotton batting or smooth soft paper on the face side. Cover this with green cloth such as carriage makers use for head lining, drawing it tight and tacking it to the board around the edges only, so that the Tacks will not show. Around the edges now put on a stitched binding, braid or corded welt. Tack it on with round headed Tacks of any kind, fill the face with Brass Screw Hooks or parallel lines of bright braid put on in loops so as to admit whatever you wish to put in them. From one to four of these will be found convenient and attractive.

Catch the Public Eye.

Anything that will catch the eye of the passing crowd is good. Old relics, fancy pictures, emblems of the approaching seasons, such as garnishments of evergreen, autumn leaves, flowers, in fact, anything that will cause people to cast a passing glance and remark about your window display.

Some Hardwaremen seem to be afraid that the public will not know that they keep Barb Wire, Smooth Wire and Woven Fence, so they pile a lot of these articles in the front of their windows. If one wants to attract the best class of trade to his store he can well afford to keep all such goods well to the rear.

Some dealers seem to think they must have the windows full of Stoves, Ranges and even Machinery. This may be all well enough if one has lots of room to display other goods, but it is a mistake to crowd the smaller and finer goods out and back where they cannot be seen.

Give the Boys a Chance.

In the arrangement of windows, and for that matter in everything that goes to make up good store keeping, "the boys" should be allowed to try their hands, for by so doing the "boss" will often be agreeably surprised.

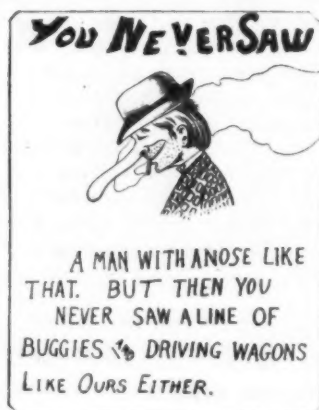


Fig. 1.—Window Poster Made by Boy.

Don't keep them washing the glass, sweeping the floor, or polishing the Door Handles too long. There is no telling what they may develop. The creative and originaive power is often more active in the young than the old, but it will never be known unless some incentive is offered. Let them take turns in fixing up the window, lettering a bulletin, or drawing a picture for the window. Offer a small premium, and see how soon your help will improve. There is a great deal in natural ability, and yet those that are seemingly a little slow should not be turned down without having a good chance. Nine times out of ten it is timidity that ails the young. We read of great men and women in all lines who as children and pupils were considered very dull. Almost every boy of ordinary intelligence will be found to be very useful in some capacity about a store if he is given a proper chance. The boy who was turned down as clerk has afterward succeeded his exacting employer.

In proof of the truth of the foregoing, which relates to having the help draw pictures for the window, Figs. 1 and 2 illustrate two drawings that appeared in my



Fig. 2.—Another Poster by the Same Artist.

window about 24 hours after the suggestion was written and left carelessly laying upon the desk. The boy who sweeps and makes fires, of his own accord, "took the bit himself," and proved to me, whatever may be their merit, that the boy should have a chance.

Newspaper Ad. and Window Displays.

We are constantly hearing of great fortunes being realized by the medium of newspaper advertising, just as we hear of great fortunes being made in the "Belgium Nail" business and in the gold regions, but we don't hear much about the thousands who never realize anything but the "food that fools are fed on." It is a very difficult problem to figure out in dollars and cents as to which may have it—the window and other displays and devices or the ad. you pay for. A great deal will depend upon the character of your local paper, its circulation, what it costs you, and also your ability of writing good ads. If the storekeeper and his regular help do all the work of arranging windows, getting up striking displays and all the "conjuring" along the line that leads people to "come their way," it would appear that the window display "have it." However, this may be, neither should be neglected, for, depend upon it, a good readable ad. in a good paper, from the hand of a truthful merchant, will be read just as surely as a nice lot of good goods well arranged in a nice, clean window will be looked at.

Striking and Ingenious Displays.

There is not the least question but what things distinguished by the above name, which takes in everything from a Thanksgiving turkey to a war ship, are a great advertisement. The writer has had this fully proven, for in the fall of 1898 the "Rough Rider," whose picture appeared in *The Iron Age*, July 20, 1899, was put upon exhibition and remained, all told, about three months, and to this day people talk about him, call to see him, and take a hearty laugh whenever they see his picture. In getting up things of this kind upon large dimensions it is better to take advantage of some special occasion when there is a good crowd to spring it upon. After that you may set it back in the store, and, if it ever did attract, it will still continue to do so. Thus, people will call who never saw the inside of your place before.

A Poultry Netting Stand.

Too often do we see specials and Tinware piled up upon a bargain counter or stuffed away on a shelf when a very little work will bring them to the front and make them quite attractive. Take a piece of common Poultry

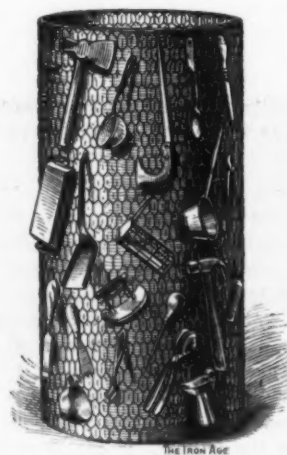


Fig. 3.—Stand Made of Poultry Netting.

Netting about 6 feet long and 48 inches high. Form it into a roll about 22 inches in diameter. Make a lot of little Hooks from No. 12 Galvanized Wire, and hook them in rows all around the outside; of course, stand it on end and hang anything you like upon the Hook, as shown in Fig. 3. Within two hours' work you will be surprised to find what an attractive display Rack you have. You can set it anywhere, and it will look well, and is light to handle. It may be set out upon the sidewalk with safety if you will run a rod of iron through the bottom row of meshes.

AN ATTRACTIVE MAINE HARDWARE STORE.

THE accompanying illustrations represent the ground plan and salesroom of the new store of Almon H. Fogg Company of Houlton, Maine. The building is 66 x

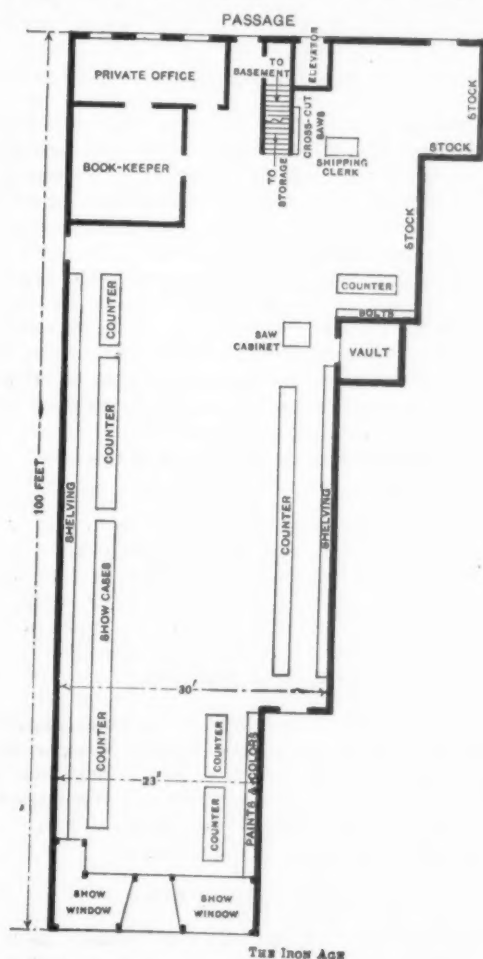


Fig. 1.—Ground Plan of Almon H. Fogg Company's Store.

100 feet in size, but the front of the store is only 23 feet wide. The room widens first to 30 feet, then to 46, while the rear is 66 feet wide. The J. D. Warren Mfg. Company's Shelving has been installed on the left of the en-

trance, in front of which is a row of fine show cases which serve as counters in this portion of the store. Paints and Painters' Supplies occupy a prominent location on the opposite side of the room.

The offices are located in the rear portion of the building. The private office contains desks for each of the four members of the concern, and in front of this is a large and well equipped office for the use of bookkeeper and stenographer.

The basement is used for Nails, Building Paper, Cordage, Oils, &c. Trucks mounted on casters are used for oil barrels. The barrel is tapped and put on a truck and rolled into place, where it stands until empty. The building is heated with steam throughout, the boiler being located in a fire proof boiler room, 16 x 50 feet, in the basement. Fire hose, ready for instant use is found in the basement and on the salesroom floor. The upper floors of the building are leased for other purposes.

The building is lighted throughout by electricity. The salesroom is conveniently arranged, large and roomy and is well lighted. It is regarded by the local press as one of the handsomest stores in Maine. The company are retailers and jobbers in Hardware, Cutlery, Paints, Oils and Farming Tools. The business was established in 1859.

F. W. DEVOE & C. T. RAYNOLDS CO.'S FIRE.

THE Brooklyn paint grinding factory of the F. W. Devoe & C. T. Raynolds Company, at Plymouth and Bridge streets, was almost totally destroyed by fire Friday night, February 19, the loss, although not adjusted yet, reaching approximately \$200,000 or thereabouts. This will in no way interfere with the company's business, we are authorized to say, as they have a large factory in Horatio street, New York, the capacity of which was at once doubled, and a factory in Chicago. The company say that all orders will be filled without delay, and there will be no interference with deliveries. The company owned both building and site in Brooklyn, the future disposition of which has not yet been determined. This business, founded in 1755, is probably the oldest in Paint manufacturing in this country.

THE JOHNSON HARVESTER COMPANY, Batavia, N. Y., send us catalogues devoted to Continental and Orchard Disk Harrows, Continental Disk Drills and Seeders and Cultivators, Rakes and Tedders, &c.



Fig. 2.—General View of Almon H. Fogg Company's Salesroom.

Illinois Retail Hardware Dealers' Association.

(By Telegraph.)

THE sixth annual convention of the Illinois Retail Hardware Dealers' Association was called to order in the Music Hall at East St. Louis on Tuesday morning, February 23, promptly at 10 o'clock, with President Chas. H. Williams in the chair. Including visitors there were nearly 200 present.

Mayor's Welcome.

Silas Cook, Mayor of East St. Louis, was introduced, and welcomed the delegates to the city. He referred to the large number of delegates present, which, he stated, was evidence of the interest the delegates had in the work of the association, and after rehearsing the merits of East St. Louis as a convention city, and incidentally referring to it as the third largest city in the State of Illinois, he presented the keys of the city to the convention, with the hope that they would like them so well they would return again on some future occasion.

President Williams replied to the address of welcome, and among other things said that last year when the association by unanimous vote decided to meet in East St. Louis, the Mississippi River was so proud of the honor conferred that it actually swelled beyond its banks to such an extent that not only East St. Louis but the adjacent territory as well knew that a great honor had been conferred on East St. Louis. Then, in a more serious vein, he thanked the Mayor, and expressed the hope that the association might again have the pleasure of meeting in this city.

Committees.

The following committees were then appointed:

LOCATION OF NEXT MEETING: J. A. Hunter, Peoria; Fred. Kurtz, Chicago; George Olendorf, Centralia.

FINANCE AND AUDITING: Leo Krueger, Chicago; David Refior, Ottawa; M. Fahay, Decatur.

QUESTION BOX: O. B. Kurth, Centralia; C. T. Woodward, Carlinville; T. C. Conner, Jr., Evanston; John Homan, Nashville; T. J. Matthews, Mt. Vernon.

RESOLUTIONS: George Meyers, Peoria; I. K. Neeley, La Salle; Fred. Siegrist, Highland; O. A. Stebbins, Chicago; L. H. Clark, Rockford.

NOMINATIONS: H. G. Cormick, Centralia; Dennis McLaughlin, Chicago; Charles Johnson, Peoria.

PRESS: G. R. Lott, Chicago; H. H. Roberts, Chicago; S. P. Johnston, Chicago.

The convention then adjourned until 2 o'clock.

TUESDAY AFTERNOON SESSION.

President Williams called the convention to order promptly at 2 o'clock and delivered his annual address. Among other things he said:

President Williams' Address.

The past year has been a successful one for our association. Every one has been busy with his own affairs and very few complaints have been filed with your officers. This fact of itself indicates a rather healthy condition of trade. The jobbing trade generally seem disposed to regard their customers' requests in restricting their sales to consumers. No doubt there are exceptions to the above, and I wish for the coming year each member would furnish our secretary with a concise statement of all illegitimate encroachments on his trade by either jobber or manufacturer.

President Williams also called attention to the fact that trusts were furnishing their employees with better facilities for working than formerly, and this was a matter for congratulation.

He called attention to the increase in mercantile associations, and said that they should use discretion and conservatism so that their growth would be continuous. He referred to the proposed Parcels Post law, and said the contest was still on and undecided.

In conclusion, the president recommended that the members confine their purchases from jobbers to reliable

houses who carry a good line of goods and liberally carry out the guarantee of the manufacturer.

Secretary's Report.

Secretary Nish made a verbal report, which showed a large increase in the membership. He said the association now had a membership of 281, and that 15 applications for membership had been received at the morning session.

Treasurer Englehardt

made his report, showing a comfortable balance in the treasury with all debts paid.

Mr. Cormick's Address.

H. G. Cormick of Centralia then addressed the association on the work of the Executive Committee. He reported especially the recommendation of the committee that the members support the efforts of the National Retail Hardware Dealers' Association in building up the National Hardware Dealers' Mutual Fire Insurance Company of Huntingdon, Pa. He said they had already subscribed about \$500,000 worth of insurance. He urged the members to take out insurance with them, and said that the insurance company would be a means of building up the membership of the State associations as well as the National.

Hardware Troubles.

A paper was read by George K. Swan of Mattoon on the subject, "Some Hardware Troubles." A lively discussion followed on the many topics referred to in the paper.

Mr. Hauss' Remarks.

C. Hauss, a veteran and pioneer Hardware dealer of East St. Louis, addressed the convention at some length on the subject of the changes in the goods handled by Hardware dealers. He said to some extent the present Hardware store was like a department store, and if made more so would do much to remedy the opposition to department stores.

System.

L. H. Clark of Rockford read a paper entitled "System," which dwelt on the advantages to be derived by adopting more system in the Hardware trade.

Before the convention adjourned for the afternoon John F. Bannon and F. O. Steinmeyer of the Missouri Retail Stove and Hardware Dealers' Association addressed the meeting and said an effort would be made to have their association meet with the Illinois association in joint session the following day. They spoke at length on the advantages of united action on the part of the two associations toward the betterment of business conditions.

The convention then adjourned, to meet Wednesday morning.

Smoker.

The local Entertainment Committee arranged a delightful smoker and vaudeville entertainment, which took place Tuesday evening in Music Hall. The hall was crowded with delegates and their friends, and the entertainment was much enjoyed by all present.

Chicago Special.

On Monday morning, the 22d inst., nearly 100 delegates and manufacturers boarded the Wabash Railroad train, which left Chicago at 11 o'clock, reaching East St. Louis at 7 o'clock in the evening. Chairman W. H. Bennett, Chicago, saw that the commissary department did its work faithfully, and the result was that the delightful menu provided by the committee was immensely enjoyed by all who made the trip. Reaching East St. Louis the delegation was met by a local band, and under its escort marched to the Hotel Royal, where dinner was in waiting. The following firms were contributors to the en-

tertainment "en route to East St. Louis;" Reading Hardware Company, Chicago; Bullard & Gormley Company, Chicago; Geo. W. Trout & Co., Chicago; Richards Mfg. Company, Aurora, Ill.; Lawson Mfg. Company, Chicago; Geo. H. Bishop & Co., Chicago; J. L. Perkins & Co., Chicago; American Screw Company, Chicago; Ranney Refrigerator Company, Chicago; Estate of P. D. Beckwith, Dowagiac, Mich.; Russell & Erwin Mfg. Company, Chicago; American Wringer Company, Chicago; the *American Artisan*, Chicago; *The Iron Age*, Chicago.

WEDNESDAY MORNING SESSION.

The convention was called to order at 10.15 o'clock, with nearly 100 members present. A paper, entitled "Benefits to Be Derived From Local Associations," was read by Grant W. Porter of Chicago. Mr. Porter is a charter member of both the State and Chicago associations, and is naturally well qualified to write such a paper. Mr. Porter stated that the amount of system required depends on the character and volume of business, on the number of employees required, and whether cash or credit, and also upon the class of customers the trade are dealing with. Mr. Porter made valuable suggestions as to method of keeping records of sales, material used and labor employed in shop work, &c.

H. G. Cormick of Centralia then read a paper entitled

"Co-operative Buying for Country Dealers." Mr. Cormick's paper, while brief, was very interesting.

M. L. Corey, secretary of the National Retail Hardware Dealers' Association, spoke of the work of the National Association. He outlined the work done during the year and spoke of what was in prospect for the coming year. He covered the Parcels Post bill very fully and urged all delegates to write to their Representatives in Congress opposing the passage of this bill.

After Mr. Corey's address the delegates from the Missouri Association, who were in session in St. Louis, were introduced. President Frier of the Missouri Association was introduced and referred briefly to the pleasure their association experienced in the joint meeting.

R. R. Williams of *The Iron Age* was introduced and spoke of the progress being made by the retail Hardware associations throughout the country, and stated he was the bearer of messages of good will from the New York, Pennsylvania and Ohio associations, the meetings of which he had attended within the past few days.

After listening to brief addresses by other delegates the convention adjourned to meet at 2 o'clock, at which session the election of officers will take place and the place of next meeting will be decided. At this moment it looks very much like Peoria for 1905.

Minnesota Retail Hardware Association.

(By Telegraph.)

NOT daunted by zero weather, deep snows and crippled train service 300 members of the Minnesota Retail Hardware Association met in their eighth annual convention at St. Paul, Wednesday, February 24. The attendance represents more than half the total membership of the association.

In the forenoon the following members of the Executive Committee met in Elks' Hall, the convention headquarters, and perfected plans for the routine work of the convention. W. H. Tomlinson, president, Le Sueur; M. S. Mathews, secretary, Minneapolis; C. F. Ladner, St. Cloud; C. F. Schmidt, Wabasha; A. T. Stebbins, Rochester; F. E. Hunt, Red Lake Falls; J. F. McGuire, St. Paul; B. F. Kernkamp, St. Paul; C. H. Casey, Jordan.

The first regular session was held at 2 p.m. Comptroller Betz, representing Mayor Smith of St. Paul, delivered an address of welcome in which he expressed the pride with which citizens of St. Paul looked on the growth and success of the association. The address was replied to by C. D. Decker and President Tomlinson.

The success of the insurance feature of the Minnesota Association was the subject of much enthusiastic comment, the association serving as a pattern to other associations in half a dozen States.

President's Address.

It is with much satisfaction that I again come before you at this our eighth annual meeting. Your increased attendance shows your continued interest in our work, and I have only good to report to you. Continued prosperity, increased membership, prevailing harmony, are items calculated to encourage, but in addition we may record our thankfulness that there have been no deaths among our members. Work for our good is constantly being accomplished, and last, but not least, our insurance department has met with phenomenal success. I therefore have reason to congratulate you on the past year's history of our organization.

Our secretary will give you the report of your delegates to the National Association, but I take the opportunity to inform you now that the principal request which we made of them was granted—namely, representation according to membership. As our association stands now we shall be entitled to six votes in the National Convention, while last year, with over 400 members, we had the same number of votes as some States with only 17 members.

Another important step in the interest of the retail dealers was taken when the National (Wholesale) Hardware Association and the American Hardware Manufacturers' Association extended to our national representatives an invitation to attend their meeting. This secures an opportunity for conference, suggestion, and possible

future co-operation of three great branches of trade. The meeting of the representatives of such bodies to discuss trade matters in the right spirit must certainly be conducive of good to each and all. Our Mr. Stebbins, treasurer of the National Retail Hardware Dealers' Association, attended this meeting and will make a report to you.

ONE OF THE ADVANTAGES OF ORGANIZATION AND CO-OPERATION is shown in the work of the different State associations in regard to the Parcels Post bill now before Congress. This bill has met with uniform opposition by them by which so far they have succeeded in defeating it. Mr. Corey, our National Secretary, will inform you more fully on that subject.

We have had one disagreeable experience this year in the action of the Minneapolis Retail Hardware Association asking the Twin City jobbers to give the T. M. Roberts Supply Company the same privileges that are given to the Chicago catalogue houses by the jobbers of that city. But the matter was effectually disposed of, as the jobbers refused to grant their request, and our Executive Committee also censured the Minneapolis Association for their action.

Representing our association, I wish to thank the trade papers for their uniform courtesy toward us, and for efficient service in creating favorable sentiment toward our association work.

I gratefully testify to the excellent work of our efficient secretary and his assistant in caring for the work of our office, and to their loyal and earnest endeavors to promote our welfare.

WE HAVE FULLY DEMONSTRATED BY OUR WORK IN THE PAST YEARS THE ADVANTAGES OF ORGANIZATION.

I feel certain that there is not a member who has not realized benefit, either directly or indirectly, from our association work. Our steady advance in membership proves the satisfaction felt by those already members. The Hardware dealers of the State have faith in us, and they can see advantages to be gained by joining us. I can see with us to-day the same men who helped to organize our association, besides many others who have joined us in the good work since that time. I can see no reason why our prosperity should not continue. This hopeful prophecy will be rendered of fulfillment if each member will show a live interest in the work. Any information or suggestions sent to our secretary will receive due and prompt attention.

In closing I desire to thank the association most heartily for the evidence of their confidence shown in choosing me as their presiding officer for three consecutive terms. I have enjoyed the work and have given it my best endeavors, but it would not have achieved the success it has were it not for the loyal support of our members and officers.

NEW YORK STATE ASSOCIATION OF RETAIL HARDWARE DEALERS.

THE programme has just been determined for the second annual convention of the New York State Association of Retail Hardware Dealers. The meeting will be held in Rochester on March 8, 9 and 10, at the Chamber of Commerce. The headquarters of the association will be at the Whitcomb House. A meeting of the directors of the association will be held on Tuesday morning, 8th inst. In the afternoon the convention will formally open at 2 o'clock. Hon. James G. Cutler, Mayor of Rochester, will welcome the association to that city. After the enrollment of new members and payment of dues, W. R. Walkley of the Peck, Stow & Wilcox Company, New York, will make an address on the subject of "Relations Between Manufacturers, Jobbers and Retailers." J. B. Foley of Syracuse will follow with a paper on "Retailing Cutlery." The first afternoon session will be brought to a close by an address by a representative of the National Retail Hardware Dealers' Association. Two sessions will be held on Wednesday, 9th, and as much of these sessions as may be required will be devoted to a discussion of the relations of jobbers and manufacturers and their traveling salesmen and the retail trade. The formal addresses at

the morning session will be by A. E. Bolles of *Hardware* on "Retail Advertising," and by representatives of Russell & Erwin Mfg. Company, P. & F. Corbin, Reading Hardware Company, Sargent & Co., Yale & Towne Mfg. Company, and other manufacturers. At the afternoon session R. R. Williams, Hardware editor of *The Iron Age*, will make an address on "Theory and Practice in Business." There will also be a general discussion for the good of the association. Both sessions on Thursday will be of an executive character.

At the morning session the annual address of President W. D. Hollowell and annual reports of Secretary John R. Taylor and Treasurer F. E. Pelton will be read; also reports of a number of committees. Officers will also be elected for the ensuing year. The convention will come to a close in the afternoon, the final session being devoted entirely to the consideration of queries brought up by the Question Box, and the discussion of the work done and to be done by the association. It is evident therefore that provision has been made for a convention which should prove exceedingly instructive and enjoyable. John R. Taylor, Little Falls, N. Y., will be pleased to give any further particulars that may be desired, especially by those who are not at present affiliated with the association.

Missouri Retail Hardware and Stove Dealers' Association.

(By Telegraph.)

WEDNESDAY MORNING SESSION.

Morning session was called to order at 9.30. Letter was read from Merchants' Mutual State Association of Missouri asking for appointment of committee for the purpose of joining together in matter of making collections. This suggestion was favorably regarded, and the president will appoint committee. Secretary reported \$31,000 insurance subscribed. Other subscriptions were received and matter again discussed. Auditing Committee reported secretary-treasurer's books correct. R. R. Williams, Hardware editor of *The Iron Age*, was present and made a speech, which was well received. Geo. A. Bond of the Missouri Retail Merchants' Association also addressed the meeting.

Old Officers Re-elected.

The election resulted in the selection of the same presiding officers for another year. The place of holding next annual meeting was left to the judgment of Executive Committee. Convention adjourned to meet in joint session with Illinois Association in East St. Louis.

OPENING SESSION.

The Missouri Retail Hardware and Stove Dealers' Association began their sixth annual convention at the Missouri Athletic Club, St. Louis, about 10 o'clock Tuesday morning. The attendance was a representative one and included dealers from all parts of the State.

Address of Welcome.

After being called to order by the president, an address of welcome was delivered by R. H. Meyer, president of the St. Louis Retail Hardware Association, as follows:

It is with great pleasure and satisfaction that I greet you on this occasion of our annual assembly, glad that so many, including new and strange faces, have come from the various parts of our great commonwealth to meet with us. Association, combination, co-operation have proved to be an absolute necessity in the age of organization, of concentration of power, of thought and of action, and we are surrounded by societies of every class and purpose in these progressive times. If we would be in the forefront we must first, last and always have an aim for organized work; hence, we owe thanks to the men whose foresight and ability have made this organization

possible in six years, and which has so improved the conditions of the retail Stove and Hardware dealer.

I assure you that each member of this local branch feels himself an *ex-officio* member of the Reception Committee, and will do his utmost to bring about acquaintance and good fellowship, and make your short stay among us a pleasant and happy one, therefore in the name of the St. Louis branch of this association I welcome you most heartily, and trust your journey to the World's Fair City and presence at this session may be attended with pleasure to yourselves as well as profit to the association.

President Taylor Frier, in an appropriate response, expressed the heartfelt thanks of the visiting delegates for the warm welcome.

The chair then appointed committees on Press and Resolutions.

Recess and social session being in order, short addresses were made by representatives of the press and jobbing and manufacturing interests.

President Frier then delivered his annual address, as follows:

PRESIDENT'S ADDRESS.

I greet you to-day at this our sixth annual convention with a growing confidence in the ultimate stability and success of our association, and congratulate you upon the fact that we are, in my judgment, on higher ground than at any time since our organization. The year 1903 has been a momentous one to our association.

THERE IS NO SUCH THING AS STANDING STILL AND PROGRESSING

at the same time, so your officers and Executive Committee, marching hand in hand and working harmoniously together, have tried to fulfill the expectations of the membership in trying to arouse an increased interest among the dealers of our State in association work and in carrying out measures adopted at your last annual meeting, looking to the advancement and perpetuity of our organization. As to whether we have made any progress, you can determine from the detailed reports which will be presented by your worthy secretary-treasurer and Executive Committee.

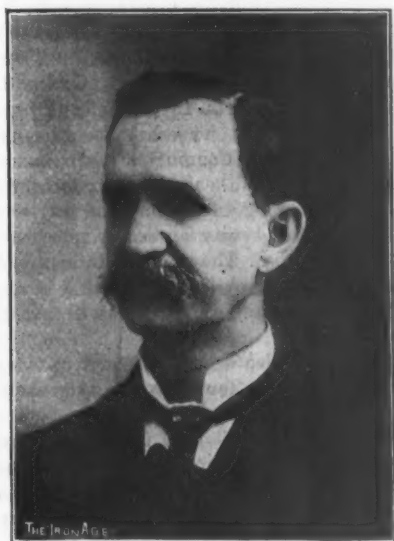
In making this address, my purpose is to present to you a brief, yet comprehensive statement of the work that has been done in behalf of the association during the past year, and recommend to you some suggestions which, if adopted by you, the legislative body of the association, will insure for it greater prosperity than it has yet experienced since

its organization. As already indicated, the association was organized six years ago, and during that time organized effort has been strenuously advocated, and adopted by the manufacturer, jobber, retail merchant, mechanic and laborer the world over, and yet the large majority of the Stove and Hardware dealers of our State

DO NOT SEEM TO HAVE CAUGHT THE SPIRIT,

judging from the fact that the appeals made by your secretary through the trade papers and by mail have not been responded to. Notwithstanding this fact, your officers have not faltered in their determination to eventually place upon the banner of this association the word success. The report of your secretary will show the largest membership at the close of the year that we have ever yet enrolled.

The issuing of a manual, authorized at your last annual meeting, is an accomplished fact, and it is in your hands for inspection. If it meets your approbation, don't fail to tell the secretary so, for to him is due largely its issue. Be as ready to compliment as you would to criticise. The



TAYLOR FRIER.

revenues from the book will place us on "easy street" for this year, and leave a healthy balance for 1904.

Your Executive Committee has held two meetings during the year, first at Macon, shortly after your last convention, and then again at Kansas City last fall. For information as to what was done at these meetings I refer you to the report of the Executive Committee.

MUTUAL FIRE INSURANCE.

I regret to report that we have been unable to organize the mutual fire insurance company as authorized by you at your meeting one year ago, although strenuous efforts were made to do so. The failure I attribute to the apathy and want of confidence in mutuals of the dealers of the State. The secretary's report will show in detail what was done, and my hope is that our failure will stimulate renewed action by this body, and that ways and means will be devised before adjournment that will successfully launch upon the insurance sea a strong and worthy craft that will command the confidence not only of the membership of this body, but of every dealer in the State.

I imagine I can hear some one ask what advantage would such an organization be to us, and could it be successfully conducted. To these questions I would say: Yes, it will save you from 30 to 60 per cent. over old line rates, as shown by the statement made by President Heeney of the Implement and Vehicle Dealers' Association in a meeting held at Kansas City January 19, 20 and 21, as follows:

While on the subject of membership, allow me to state as an individual member that I consider it not only a duty to be a member of this body, but also a privilege, as all my expenses of annual dues, railroad fare and hotel bills are paid or saved to me each year by my membership in the Reciprocal Underwriters, and as there are no privileged classes in this association, all who wish can enjoy the same

pecuniary advantages that I am enjoying. I will cite you my case. The board rate on my building and merchandise is \$13.50 per thousand. I carry a \$4,000 policy in the Reciprocal Underwriters, for which I paid last year \$54. On the fifteenth of last August I received a return premium of \$36.71, which pays all dues and expenses to this convention and some small change to spare. Now then, gentlemen, why don't you all joint the Reciprocal Underwriters? Can any of you show me where I can invest \$20 and bring an annual return of 180 per cent.?

Also the statement of the Retail Dealers' Mutual Fire Insurance Company of Minnesota, at the close of business December 31, 1903, in which the firm of which I am a member has a policy.

[President Frier here read the statement, which has already been published in our columns. The statement shows that the return premium for 1904 was 30 per cent.]

Do you doubt for a moment that we have in our association men who have the ability to manage, just as successfully, such an institution among the Stove and Hardware dealers of Missouri? I know you do not.

INCREASING THE MEMBERSHIP.

Another item of paramount importance to our association is the question of increasing the membership. As individual members, we should not be satisfied with a membership of less than 500 when we meet again one year hence. And I want to say to you now that if each member present to-day will constitute himself a committee of one to see that every dealer in his town or locality shall become a member of our organization this result will be realized. There is no reasonable excuse why any of the 1,000 or more live and aggressive dealers of our State should not become members of the Missouri Retail Stove and Hardware Dealers' Association, and it is incumbent upon you to enact legislation that will encourage and bring about this result. There is power in numbers; yes, wonder-working power, and may I appeal to every member here present that he now pledge himself that during 1904 he will earnestly co-operate in every way possible with your officers? If you will I do not hesitate to predict that you will more than double your present membership.

If any of you have an article for sale in your store that you have confidence in and know beyond a doubt if properly used it will give your customer satisfaction, do you keep silent about the good qualities of said article to your friends when in your place of business, or on the street for that matter? I am satisfied you do not. Therefore, if you are satisfied our association is a good thing and you have faith in it, won't you be as equally earnest in presenting its claims to the non-affiliated brother dealers in your own or neighboring town? Talk association and its benefits whenever an opportunity presents itself, and you will be gratified at the results. I fear our membership as a whole have failed to appreciate the good effect a word fitly spoken would have on others interested and engaged in the same business.

PARCELS POST.

In this connection I desire to call your attention to the importance of individual and organized influence against the Parcels Post bill now before the Congress of our country. The power that is behind this measure and is urging its passage must not be underestimated, and it behooves the retail trade of the United States to awaken to the fact that if they desire to protect their interests immediate action is necessary.

Many of you, no doubt, realize the benefits that have accrued to the retail merchant by the passage, at the last session of our legislature, of the

GARNISHMENT BILL,

and that the repeal or modification of this measure would be detrimental to every member of this association. It behooves us, therefore, to keep an eye on future legislation, as there is a disposition on the part of certain interests to change or modify this bill so as to make it practically worthless in compelling dead-beats to pay their honest obligations. I hope, therefore, that this association will act in concert with all kindred interests in defeating the Parcels Post bill and sustaining the Garnishment Law.

In conclusion, I wish to gratefully acknowledge the

valuable advice and services rendered by your worthy secretary and the Executive Committee in the management of the business of the association for the past year. May your deliberations be harmonious, and your legislation during this meeting redound to the good of the organization.

It was left to the discretion of the members having papers prepared whether they should be read in open or executive session.

Secretary Neudorff's report was as follows:

SECRETARY'S REPORT.

In submitting my third annual report I wish at the outset to thank our worthy president and the members of the Executive Committee for their unvarying kindness and loyal support to what was deemed the best interests of the association, serving wholly without compensation except the gratification that comes with all efforts to do good. They have given their time and thought freely to the cause and deserve the grateful acknowledgment of retail Hardware interests. Mistakes of judgment have been made, but



FRED K. NEUDORFF.

these are wholly the fault of the secretary, and he should bear the criticism alone. Of the work done and results accomplished, I wish to narrate in as brief a manner as possible.

THE BASIC AIM OF THE ASSOCIATION

was to so grow in membership that the strength flowing from such great force would be invincible in any cause where justice demanded settlement. Along this line we can point with some pleasure to the fact that the membership has been almost doubled.

As to methods used, the summary will show. Acting under instructions, I sent a personal typewritten letter to all those who had ever been associated with us, stating that to save them annoyance we would issue a draft at three days' sight through the bank, and to kindly honor same and continue with us. The response was favorable from about 31, and unfavorable from about the same number. Some were offended at the method employed, and to those I sent an apologetic letter and a second appeal, to which I received a few favorable responses, sufficient at least to cover the expense.

The members of the Executive Committee, realizing the necessity of adding some direct personal benefit to strengthen the bonds of membership, have for two years labored strenuously to perfect a

MUTUAL FIRE ASSOCIATION

for our membership, which in its operation would relieve us from the exorbitant rates of the Insurance Trust, and which under the beneficent and stringent insurance laws of our good State would afford the maximum of security at the minimum of cost. To this end the secretary made a complete compilation of the laws of the State relating to

this subject, and after referring same to the supervision of one of the ablest attorneys on this subject, it was sent with a reply postal card to every dealer in the State. The responses to this letter were so meagre as to create astonishment, and another postal card was sent out, inquiring as to receipt of the letter and requesting an answer of some sort; of 1,150 sent out not over 75 replied. This was a most disheartening experience, and I was desirous of laying down the work, but was prevented by the president.

The conclusion arrived at was to the effect that there was no use in attempting to do anything by the circulation of letters, and that personal work on the part of a canvasser was the only possible means of awakening the Missouri retailers from their state of apathy to association matters, but this plan presented a problem of finance, and the effort to raise the necessary money prompted the attempt to issue a manual containing the program of meeting and excerpt of the insurance laws as relating to our work, the constitution of the association and a short historical sketch of the association. To this end the secretary sent out letters to all kindred manufacturing interests in the State and received some little encouragement; however, it was deemed expedient to have a solicitor attend to this work, and A. L. Hardy, a writer of some experience, was engaged at a reasonable commission to do this work. This party had all the necessary parts to do splendid service, but lacked the one thing most necessary for thorough service and caused the Executive Committee much annoyance and worry, and left the work in a very unsatisfactory condition. However, the secretary again took up the matter of soliciting advertisements, and was agreeably pleased with the kindness of the response. The advertisers in this book have placed us under deepest obligations, and I trust that our membership and the trade in general will not forget the obligation.

The association is also deeply indebted to *The Iron Age* and the *American Artisan* for many, many gratuitous helps and encouragements given us in the work.

There are those who will read this report and perhaps imagine that the best brains of the retail Hardware trade of Missouri are giving their time and energy to build up a social or fraternal organization, and many letters received voice that view by asking

WHAT BENEFITS WILL ACCRUE BY MEMBERSHIP.

The question is natural, but the answer is in good, hard coin of the realm.

We have a Committee on Trade Abuses. Abuses are now so rare that but one was referred to them out of a total of five received, all being satisfactorily adjusted by the secretary.

Through arrangement with different manufacturers many goods in our line which were used as leaders by catalogue houses have either been eliminated from their catalogues or prices placed on them which enable us to sell them at a profit. Those who sell Field Fencing are prohibited from cutting prices under penalty of losing sale of the goods.

Under contract with the Minnesota Retail Hardware Insurance Company, our members save 30 per cent. of the regular insurance cost, and as the Missouri State laws are even more favorable to the policy holder, we hope with economical management to do even better when we get our branch in operation.

The powerful aid we gave in passing the garnishment law of this State insures the collection of every debt due you by debtors, and the numerous benefits you have obtained would be cheap at an expenditure of \$25 per membership. There is one even greater thing we could do to benefit you if you would only consent, and that is to remove the idea from your mind that your competitor in business is any different sort of man than you are—that he is not your deadly enemy and wears horns; but the way to remove this opinion is to meet him here at our annual meetings and resolve to do all the good you can for association work, and by uniting to fight the outside enemy become brothers in your personal intercourse. In this connection I wish to call to your attention and impress upon your minds the

NECESSITY AND URGENCY OF PERSONAL WORK.

Do not expect the officers to do it all. The secretary has written over 600 letters in long hand during the year; has

sent out over 25,000 pieces of printed matter; made out over 100 drafts; addressed over 4,000 envelopes; prepared all the matter for these papers; furnished articles for the trade papers and compiled and edited and wrote the matter for the Manual. He did this cheerfully—gladly—simply to win success; yet feels that if he had the active support of every member our success would have been a hundredfold what it is. Perhaps you want some direction as to what you can do, and I will outline

SOME OF THE WORK BEFORE US.

I quote from an organ of the unions before me the statement that an attempt would be made to destroy our new garnishment law on the flimsy pretext that the business element would demand an increase in the percentage of wages garnished. We regard this bill as the most just and honest measure ever placed upon the statute books, and it becomes your duty to line up the people who think as we do to prevent its repeal. Will you do it? It may surprise you to know that in this State at least bills of public importance are not settled by reason of their merits or demerits, but greatly on the ground of political advantage. It will not hurt any to keep an eye upon your legislative agents, and to let them know that you are on guard. I am strongly of the opinion that we should at this meeting make arrangements to have a legislative committee appointed, to consist of the dealers at Jefferson City and others who are in closest touch with the work.

In concluding my report, permit and pardon the following reference to the work accomplished. When I undertook this work devolving upon your secretary, neither I, nor any of the officers, had any idea of the worse than chaotic conditions we had to build the work upon. At first we were practically lost in trying to get the tangled ends together, and some of them were so badly frayed that we may never recover the full use of them. The second year we got the affairs on a systematic basis and commenced to show some results. The third year, I am gratified to say, we have proven our right to your support by results attained. From a condition of practical debt and no safe membership we have now a

STRONG, VIRULENT, AGGRESSIVE AND LOYAL MEMBERSHIP, the largest we have ever had. In finances we are on record with the largest resources we have ever had, and we will at this meeting, I trust, furnish the incentive to plant the association on a foundation as solid and enduring as the rocks of Gibraltar.

As stated before, I am gratified for the considerate support of our worthy president and Executive Board for meeting all suggestions for the forward movement of the association with their hearty approbation and loyal good will. We have been a unit—association members and officers alike—and we will now receive the reward of patient, self-sacrificing effort.

W. T. Shoop, Richmond, chairman of the Executive Committee, submitted report, as follows:

REPORT OF EXECUTIVE COMMITTEE.

Some weeks since our worthy president wrote requesting the Executive Committee to prepare a programme for this meeting and requesting that I send my suggestions to Secretary Neudorf. I immediately complied by writing the secretary that in my humble opinion no one was in a better position or more qualified to attend to this matter than he, and I would be satisfied with his efforts along this line. I have since learned that the other members of the committee concurred in this opinion to a man.

I was rather surprised, however, to learn from reading said programme in the press that he had taken advantage of the situation by assigning me to the duty of preparing and reading report of the Executive Committee. I promise you that hereafter I will attend more closely to the preparation of the official programme and see that this does not again occur.

This report is somewhat difficult to make, for the reason that some of the business was done by correspondence, and also that I was not present at the Macon meeting and have to rely on the minutes of the secretary for the information. At our meeting in St. Louis, February

12, 1903, our first work was the unanimous election of our secretary, and also his selection as our delegate to represent us at the national meeting in Chicago, to prepare plans and make arrangements for the publication of the official manual and the installation of the insurance department. At Macon, Mo., April 22, the committee met and read report of the secretary and the progress of the work. A vote of thanks was tendered *The Iron Age* for the gratuitous printing of 1200 copies of the report of the annual meeting. At this meeting the secretary was instructed to prepare an appeal to the membership on the insurance question, also to have blotters printed for general distribution.

Your committee again met at Kansas City on September 9, all members being present, and by appointment met Secretary Matthews of the Minnesota Retail Hardware Dealers' Fire Insurance Association and entered into an agreement to carry the policies of the Missouri members until such time as our system was in operation. The secretary was instructed to notify all members of such action.

The secretary then submitted a very gratifying report of the work done on the manual, also the actions and conduct of Solicitor Hardy. A new contract was then entered into with Mr. Hardy to continue the work of solicitor.

It was not deemed expedient to call another meeting of the committee subsequent to the annual meeting, and the matters of detail were agreed upon through correspondence.

Your committee desires to return their vote of thanks to Secretary Neudorf for the faithful and efficient discharge of the duties assigned to him, notwithstanding its enormity. His work and correspondence have been prompt and courteous, and his relations with the committee have been in perfect accord and harmony, and we trust that the result shown during this meeting will make us all feel that something has been accomplished and success is at last to be our reward.

The secretary read a number of communications on various subjects of interest to the association.

Considerable discussion took place on the subject of the Parcels Post bill, and a blank petition was circulated for the signature of each member present. The first session adjourned at 11.35 a.m.

TUESDAY AFTERNOON SESSION.

The afternoon session was called to order at 2 o'clock. The first business was the reading of a paper, entitled "Successful Advertising," by O. W. Johnston, Marshall, as follows:

SUCCESSFUL ADVERTISING.

On receiving notice through our efficient secretary that a paper would be required of me, by our Executive Committee, on the subject of "Successful Advertising," my first inclination was to decline. But a realization of the fact that the officers of any worthy institution have certain claims upon its members, and to decline might indicate a want of that degree of loyalty and fidelity that should, and I am sure does, characterize every member of this association, I took up my task and present you herein a few ideas bearing on this subject, coming out of my own experience and observation as a retail Hardware merchant.

Our Executive Committee, in its wisdom said, "Write up successful advertising," which carries with it the fact that there is a class of advertising that is profitable. It would be a reflection upon the intelligence of this fine body of business men, representing most all sections of this great State of Missouri, to come before you with a paper wherein at any point it might intimate that judicious advertising does not pay.

A half century ago it might have been in keeping with the times to have read a paper before a body of business men laden with arguments and proofs, having for its purpose and aim the convincing of business men that advertising would pay. But, standing upon the threshold

of the twentieth century, living in the most enlightened of all ages, rich with great warerooms of wisdom and experience handed down to us from all ages of the past, let us congratulate ourselves that upon the subject of advertising we have only to select out of the many good methods those we have found most profitable.

It has been said that "Advertising is the nervous system of the business world." It might also be said that "Advertising is the arterial system of the great world of commerce." A well regulated system of the right kind of advertising, continued for a sufficient period of time, will cause to flow into our business life and vigor until every branch and detail will throb and pulsate with enthusiasm and animation. In our judgment

PRINTERS' INK IS FAR THE MOST EFFECTIVE OF ALL CLASSES
OF ADVERTISING.

For a retail merchant we would recommend that he contract for all the space he thinks he will use during the year from the papers having the largest circulation, paying them what it is worth rather than selecting one with a poor circulation at half the price, using both dailies and weeklies. An "ad." should not run longer than one week in the daily and two issues in the weekly,



O. W. JOHNSTON.

and in the majority of cases to change your "ad." every week in the weekly and about every third issue in the daily will bring better results. We should write our "ad." as near like we talk to our customers as we can. It should be spicy and readable, and at the same time present facts concerning our business.

PRICES.

A large majority of the heaviest advertisers in the retail business name prices. When we advertise an article at a very low price see that this article is marked at the same price advertised, and never sold at a higher price until the advertisement is withdrawn. If the price named is lower than we can afford to sell at, do not try to side track a customer, who may be brought to your store by the low price named on this article, onto an article which yields a better profit. In the first place, this would not be right. In the second place, your customer would detect your scheme, and more than likely it would result in your losing a customer.

We think cuts should be used freely in an advertisement. It makes them more attractive than without them. A great many people would be attracted to your advertisements by the picture of a Stove who would, otherwise, never read your "ad."

WE SHOULD SUPPLEMENT OUR NEWSPAPER ADVERTISEMENTS by our show windows and displays in the store. If we are making a special effort to reduce an overstocked Granite Ware department, giving large space and naming

low prices in the papers, we should pile up these goods and display them conspicuously in our show windows and store. Our customers are folks like ourselves, and love to come into a well heated, well ventilated and well lighted store that is clean, bright and cheery. They love to be met with a hearty welcome, and soon take on the life and enthusiasm of the busy store.

I would like to state right here, from the standpoint of a retail Hardware dealer, that I consider the regular trade papers the best advertising medium for the manufacturers and jobbers.

While I believe newspaper advertising, backed up by attractive and often changed show windows, clean stock, efficient and courteous salesmen, is the most effective advertisement, I recognize that there are many other good methods of advertising that are profitable. While the newspaper is good in all communities and under all conditions, other advertisements are not. A scheme that would be a success in one locality would fail in another. It might be successful under certain conditions, and under different conditions be a failure in the same locality. So on the special lines of advertising the methods and means

MUST BE DETERMINED BY THE INDIVIDUAL DEALER.

While there is no doubt that each one here would judge rightly and get good returns from all special advertisements, still if there is one in this gathering who does not advertise at all, I believe it would pay him to accept every scheme presented, hit or miss, rather than not to advertise at all. It has been truthfully said that "Advertisements at best are nothing but statements of what a business man has to offer," and the amount of credit that is given to these statements will depend upon the reputation of the firm that makes them.

It is taken for granted that all Hardware dealers are building their business reputation upon the solid bases of honesty, business integrity and fair dealing, having for their chief corner-stone those triple virtues, Knowledge, Tact and Eternal Vigilance, and placing over the main arch the Golden Rule, that magnetic key-stone that will bind hearts to yours so long as you practice its precepts. To such a firm judicious advertising will always bring good results.

Short talks by members of the association, as well as several manufacturers' representatives in attendance, on Stove troubles, was the next interesting feature of the proceedings.

Illinois to Missouri.

At the request of a visiting committee from the Illinois Retail Hardware Dealers' Association, the chair appointed a committee of three to meet and discuss the advisability of a joint session of the two associations in East St. Louis on Wednesday morning.

Catalogue House Competition.

E. A. Demeter of Macon then read a paper, entitled "How Best to Meet Department Store and Catalogue House Competition."

M. L. Corey, secretary of the National Retail Hardware Dealers' Association, made some brief remarks on association work, which were followed by a general discussion on catalogue house competition and other matters considered of prime importance in the Hardware business.

In absence of M. A. Wengert of Kansas City, his paper on "The Value of Missouri Garnishment Law" was read by the secretary. Mr. Wengert's paper was as follows:

THE VALUE AND BENEFIT OF THE GARNISHMENT LAW.

The value and benefit of the garnishment law depend very much upon the locality in which it is enforced. In territory where no organized body of merchants exists the law is practically without either value or benefit. The retail merchant very seldom takes the initiative in its enforcement. Shrewd lawyers and sometimes unscrupulous collection agencies get the most benefit out of the law. This is rather the fault of the retail merchant him-

self than any defect in the statute. If the law should be repealed as the result of its abuse the retail merchant will have no one to blame but himself. In our larger cities, where the power of the organized merchant is brought to bear, its value and benefit are undoubted and very tangible.

In Kansas City, where I reside,

THE ENFORCEMENT OF THE LAW

has been greatly strengthened by employers of labor requesting that their employees pay their just debts and not bother them with garnishment proceedings. The records of the justice courts show that a large majority of suits for garnishment are settled out of court. But very few instances have occurred in our city where direct suits for garnishment by attachments have been instituted. The most popular and almost universal method for the enforcement of the law is to first sue and get judgment. This costs \$3. The judgment holds good for three years, and may be revived each three years indefinitely, and garnishment proceedings can be instituted at any time. With the judgment hanging over the debtor, it is not difficult to induce him to pay and save further costs of \$2.35 on each garnishment. A vast majority of suits thus brought are successfully collected. The records show that at least nine-tenths of such suits are settled out of court. Attorneys as a rule are somewhat skeptical as to the efficiency of the law; but in a number of cases in Kansas City where judgment has been obtained the parties sued on applying to their attorneys for advice were told to settle the account. While some question has been raised as to the constitutionality of the law, no attorney has as yet advised making a contest. This partly may have been caused by the strong public sentiment created in our city in favor of the law. Every labor organization in Kansas City indorsed the bill before it was introduced in the Legislature.

ONE OF THE DIRECT RESULTS

of the garnishment law in Kansas City was the passage of resolutions at the banquet of the Wholesale Credit Men, on November 24, pledging their co-operation with the retail merchants by declaring that their employees must pay their just debts. The Merchants' Mutual Interstate Association, composed of the various local bodies of retail merchants from the two Kansas Cities, has been very successful in creating this public sentiment. The employers of labor are very glad to escape the annoyance of garnishment proceedings by requesting their employees to pay their just debts. As a result of this public sentiment the association has been very successfully using the circular letter of the Trades Protective Association. The records show that at least 20 per cent. of all accounts are paid in full, about 10 per cent. make partial payment, some 20 per cent. make promises, and the other half pay practically no attention to any request for settlement. Quite a number of this latter half are parties who have moved and whose names appear in our skip list each week published by the association. The reports from the retail merchants show that outlawed accounts have in many instances been paid under the pressure of this public sentiment.

We may as well anticipate that

EFFORTS WILL BE MADE IN THE NEXT LEGISLATURE TO REPEAL THIS LAW.

A contest has already been entered against the law, not based upon any objection to the law passed at the last session, but rather to the taking advantage of the old law of garnisheeing nonresidents and thus depriving them of their exemption rights. There is a great deal of this method of garnishment carried on in Kansas City. Accounts are sent to parties over the line in Kansas where the debtor is employed and his entire pay is taken by garnishment proceedings, as he is a nonresident of the State and has no exemption rights, and so vice versa. This is an abuse of the attachment laws of this as well as all other jurisdiction to evade the exemption laws, and the present 10 per cent. law is not involved and is not used, hence no blame or censure can be laid to its door.

This same contest has occurred in other States where garnishment laws have been passed. In Indiana in 1900, during the struggle of the retail merchants to pass a gar-

nishment law similar to ours, a great furor was raised over some hundred or more garnishment proceedings brought against nonresidents; but the merchants bravely contested the suit, carried the matter up to the higher court and won. At the same time similar contests in Missouri were likewise successfully tested, so far as to relieve the retail merchant from any damage suits arising from garnisheeing nonresidents. We have, therefore, nothing to fear from any attempt in this State to work a similar bluff.

There is nothing the matter with the present law when properly reinforced by organization and public sentiment. It might be unwise to attempt to amend the law by strengthening it. The proper thing to do is to

THOROUGHLY ORGANIZE THE RETAIL MERCHANTS SO AS TO INTELLIGENTLY ENFORCE IT.

In an interview with some of the justices of the peace in Kansas City they admitted that the law is not as effectual as could be desired, but they lay the blame upon the retail merchant rather than upon the law. All garnishment laws are more or less failures for this reason. If you make a law sufficiently strong to enforce itself you insure its instant repeal at the first opportunity. In half a dozen States where we have garnishment laws gotten by organized effort and by methods of proper collection, a number of communities in each of these States have obtained very satisfactory results from their respective garnishment laws.

No law can breathe for the retail merchant, neither can it supply him with judgment and common sense. He should not allow unscrupulous outside collection agencies to invade his State, victimize himself and abuse his unfortunate debtors. A code of recognized procedure should be maintained in the interest of the debtor and creditor alike. There should be some organized limit passed upon credit. Advantage should be taken of responsible collection agencies where the organized merchant is incapable of instituting his own method of collection. This does not mean that the retail merchant in an unorganized town cannot take just as much advantage of the law as though he had an organization back of him. It simply means that he will not do it, as a rule, unless some such public sentiment as an organization gives is behind him. The co-operation of the wholesale and retail merchant should be secured in creating public sentiment in favor of regulated credit. With this the enforcement of the law can be reduced to a minimum without withdrawing legitimate credit from the worthy.

THE RECORDS OF SOME COLLECTION AGENCIES SHOW THAT RETAIL MERCHANTS OUTRAGEOUSLY ABUSE THE CREDIT SYSTEM.

The same records also show that retail merchants who systematically and persistently push their collections lose very little money. It might not be a bad idea for our State association to either institute a system of collection for its members or to appoint a conference committee to confer with the State Retail Merchants' Association and other similar parties, and try to unite upon a common system applicable to all. As a rule State associations lack the money, men and methods to successfully initiate a system of their own. This is partly responsible for their being so victimized by outside irresponsible collection agencies. The State Retail Merchants' Association will hold its annual session in St. Louis next July. A committee with power to meet with them might accomplish good results.

A short address on mutual fire insurance by Secretary Neudorff was here presented, as follows:

MUTUAL INSURANCE.

I did not get my data for this paper until Friday of last week, and will try to make it as brief as possible. Under our agreement with the Minnesota Retail Hardware Dealers' Fire Insurance Association, we have made a practical beginning with our insurance department. At the present time we have \$15,300 of insurance on their books and \$4000 contingent, making a total of \$19,300. The total amount of premium on the \$15,300 actual in-

TRADE ITEMS.

M. W. HAWES, 54 Stone street, New York, is representing a number of important business interests for export only. Mr. Hawes was for years secretary of the Rochester Lamp Company, New York, and later was a member of the firm of Patten & Hawes, export representatives. Some of the interests represented are the Charles Parker Company, Meriden, Conn., Lamps; Frazer & Jones Company, Syracuse, N. Y., Saddlery, Hardware; Williamsburg Flint Glass Company, Brooklyn, N. Y., Chimneys, Shades, &c.; Glow Night Lamp Company, Boston, Mass.; S. Levy, Feather Dusters; H. Northwood & Co., Wheeling, W. Va., Colored Glass Goods, and C. H. Torsch Company, Tin Lamps.

CLARENCE I. MARKHAM, having taken up the foundry business, has opened an office in the Postal Telegraph Building, 253 Broadway, New York. He will handle foundry products in general and is prepared to submit estimates on Iron, Steel and Brass Castings, Forgings, &c.

THE PENN METAL CEILING & ROOFING COMPANY, formerly at 14 Harcourt street, Boston, Mass., are now located at 559-561 Atlantic avenue. This company deal in all forms of Sheet Steel and Galvanized Iron for building purposes, both for interiors and exteriors, including Metal Ceilings, Corrugated Iron Sheets, Metal Lath, Steel Roofing, Conductor Pipe, &c.

THE NORTON AGENCY COMPANY, 470-471 Spitzer Building, Toledo, Ohio, are representing manufacturers in Northern Ohio, Northern Indiana and Southern Michigan, canvassing the small towns thoroughly as well as the large ones. The concern, not incorporated, is composed of H. S. Norton and C. R. Norton, brothers. They have covered this territory, they inform us, for five years, having been connected with the Norton Paint & Hardware Company, Toledo, Ohio. As they have been trained in the advertising business, they sometimes do advertising for manufacturers as well as placing advertising for others when desired. They are in a position to take on a few additional salable lines that can be sold to the Hardware and Paint trade.

THE INTERNATIONAL SILVER COMPANY, Meriden, Conn., have just issued a souvenir engraving $15\frac{3}{4} \times 13\frac{1}{2}$, suitable for framing, entitled "A Remarkable New England Jewelry Store." It was owned in 1851 by Jones, Ball & Poor, Summer and Washington streets, Boston, and is said to have been unsurpassed at that time in beauty and general arrangement. The Flatware made by Rogers Bros., established in 1847, was largely sold together with the Silver Plated Hollow Ware made by the Meriden Britannia Company, now a principal constituent company of the International Silver Company.

THE COFFEY WAGON COMPANY have succeeded to the business of J. H. Coffey of Asheville and Morganton, N. C., who was formerly engaged in the manufacture of Wagons. The new company at Morgantown, N. C., have installed a steam plant, and are fitting themselves for a much more extensive production of Spring Business Wagons. J. H. Coffey is general superintendent. They are desirous of receiving catalogues, price lists, &c., of lines of material, machinery, &c., for the Spring Wagon Business.

THE MARLOU CHEMICAL COMPANY announce that after February 15 they will operate entirely independently of the New Era Luster Company, and will have their offices and factory at the corner of Bay and Warren streets, Jersey City, where they will manufacture Standard Soldering Flux, Standard Tinning Fluid and Burneas Oil. The change has been made necessary by the increased demand for their goods and consequent need of additional factory space, an increase impossible at the New Era plant at New Haven, Conn., because of the growth of the latter company's business of manufacturing lacquers. Marshall Whitlatch, the manager of the Marlou Company, will continue to give his personal attention to the business. The new factory is conveniently situated to secure the best of railroad and steamship facilities for freight purposes. The officers of the Marlou Company are: President, Louis G. Miner; vice-president, Franklin S. Cobb;

secretary and treasurer, J. Oakley Hobby, Jr., and manager, Marshall Whitlatch.

THE TOM RAY CUTLERY COMPANY, importers, manufacturers' agents and jobbers of Cutlery, Silverware, Nicked Tin and Copper Ware and Hardware Specialties, of Kansas City, Mo., have incorporated with a capital stock of \$27,000. Those interested are: Tom Ray, Fred C. and W. E. Wirt, Jr., Mary F. and James T. Johnson and W. T. Cooper.

THE W. H. DAVENPORT ARMS COMPANY of Norwich, Conn., have elected M. M. Whittemore president to succeed Amos T. Otis, who died recently. The other officers elected at the annual meeting were: Vice-president, W. H. Davenport; secretary and general manager, W. C. Davenport; treasurer, Henry H. Gallup; directors, these officers and C. D. Gallup, G. Hall, Jr., and C. W. Briggs.

P. & F. CORBIN, New Britain, Conn., state that they have secured contracts for Builders' Hardware on the following, among other buildings: Church building, Wabash avenue, Chicago, Hill & Woltersdorf, architects, Hardware contract aggregating about \$3000; Wanamaker building, New York, D. H. Burnham, architect, Hardware contract amounting to about \$4500; Pennsylvania station, Washington, D. C., D. H. Burnham, architect, Hardware contract \$13,000, this being one of the largest contracts for Builders' Hardware ever placed for any one building; Federal building, Salt Lake City, Hardware contract amounting to about \$3500.

FIRE damaged the Hardware stock of Powers & Williams, Streator, Ill., February 12, the loss approximating 75 per cent. of the value of the stock, valued at \$25,000, on which insurance amounting to \$15,000 was carried. Charles Williams, of this house, is president of the Illinois Retail Hardware Dealers' Association.

THE GRIFFITH HARDWARE COMPANY of Rushville, Ill., have incorporated with a capital stock of \$20,000. This business was established in 1852 by R. H. Griffith, senior member of the company. Other incorporators are: Chas. B. Griffith, Mrs. Maude K. Griffith, widow of Humphrey Griffith, a late member of the company, and C. Arthur Griffith, son of Charles B. Griffith and grandson of R. H. Griffith, making three generations in the new corporation.

FARWELL, OZMUN, KIRK & CO.'S CATALOGUE.

FARWELL, OZMUN, KIRK & CO., St. Paul, Minn., issue a 1904 catalogue comprising 1872 pages. It has been the design to illustrate and describe the large line the house carry, with information relating to Hardware in not too condensed form, well printed with clear type, and to avoid making the book so bulky as to be inconvenient to use. The firm have decided to issue general Hardware catalogues much more frequently than heretofore, as by so doing they believe they can serve the interests of their trade better than by sending out from time to time change slips, new pages, &c. The location of the establishment—Broadway, Third and Pine streets, conveniently situated for receiving and shipping goods—is shown in a page illustration. A sectional index indicates the departments into which the catalogue is divided and the scope of the stock, as follows: Mechanics' Tools, Butcher Supplies and Ice Tools, Locks and Builders' Hardware, Riverside Hardware Cabinets, Farming Tools and Miscellaneous Hardware, Harness and Saddlery Hardware, Paints, Varnishes and Painters' Supplies, House Furnishing Goods, &c., Favorite Stoves and Ranges, Stoves, Ranges, Furnaces, Gasoline Stoves, Hotel Ranges and Kitchen Utensils; Tinners' Trimmings, Machines and Supplies, Tin Plate, Sheet Steel, Steel Roofing and Siding; Stationery, Office Supplies and Show Cases; Cutlery, Silver Plated Flat and Hollow Ware, American Cut Glass, Clocks, Watches, Chains, Novelties, &c.; Sporting Goods, Guns and Ammunition, Fishing Tackle; Bicycle and Bicycle Sundries. The sectional index is followed by an alphabetically arranged index of 38 pages. The ideas which the firm had in view in compiling the catalogue have been faithfully carried out, and the book will, no doubt, prove a great aid to their customers in ordering goods and in the conduct of their business.

FACTORY COST AND BUSINESS METHODS.

FACTORY AND OFFICE SYSTEM OF ATLAS MFG. COMPANY, NEW HAVEN.

In this installment is given a brief description of some of the methods used in collecting, purchasing, billing, and of the office routine. None of this matter has as yet been written up in the Scheme Book. Next week, the rules regarding the regular book-keeping will be printed.

PART VIII.

COLLECTING DEPARTMENT.—Page 90.

WHILE the rules for this or the other departments described in this installment have not as yet been prepared for the Scheme Book, the blank pages for them are left to be filled up later. There are, however, some

Not Due.		Now Due.	
Dec. 15th	10 65	Jan. 15th	21 60
Feb. 28th			

Fig. 35.—Statement.

details of the work that are of interest and worthy of description.

The method of making out statements differs somewhat from the usual practice. The amounts of bills, as noted, are divided under the two headlines, "Not Due" and "Now Due," as shown in the statement reproduced in Fig. 35. Where 30 days are allowed for payment, they do not consider that the amount is due until the full 30 days have expired. Thus, the item billed on February 28 is not due, by their way of reckoning, until March 28.

ATLAS MFG CO
BRADLEY STEEL SHELF BRACKETS.
ATLAS COAT AND HAT HOOKS.

11 HAMILTON STREET, New Haven, Conn., Dec. 9, 1903.

The Sims & Co.,
Gentlemen

We have your favor of the \$10.99 mat.

enclosing check for \$10.99 in payment of our account as follows:

Invoice, Dec. let, less deductions, \$ 8.40

Accept our thanks for the same

Very truly,
ATLAS MFG CO

Fig. 36.—Form of Receipt.

Where an item is past due, as that billed December 15, the date it was due is also written in, so as to call particular attention to it. This method is intended to serve as a gentle reminder that it should receive attention.

When accounts are sufficiently overdue it is customary to send a letter with the statement. The carbon copies of these letters are pasted in the "dunning book," which is a loose leaf scrap book, just like the quotation book shown in Fig. 32 in last week's installment. A little tab is pasted on the top of the page in the same manner, which means to follow up. In case of dispute the correspondence on both sides is pasted in this book and so is kept all together. When the account is paid, or when charged off to profit and loss, the tab is torn off. The

*Quotations Received on
Paper Boxes #1 (4x5 Brackets)*

Name	Price	Date	Quantity	Freight	Cartage	Terms
White & Black	10.50	4/14/03	15.000	Allowed	Allowed	30 days
Green & Co.	12.75	4/13/03	15.000	"	"	60 "
Reading Bros.	13.50	4/14/03	15.000	Not Allowed	Not Allowed	30 "
Green & Co.	11.50	7/19/03	10.000	Allowed	Allowed	30 "
Reading Bros.	14.00	7/19/03	10.000	Not Allowed	Not Allowed	30 "

Fig. 37.—The Paper Box Quotation Card.

tab is kept on the page as long as the account is in question.

Mr. Bradley considers that the giving or receiving of receipts for payments is an unnecessary trouble and expense. He is perfectly satisfied with the returned check. If, however, a customer asks for a receipt, one is sent, the form shown in Fig. 36 being used. This blank measures 5½ x 8½ inches.

PURCHASING DEPARTMENT.—Page 100.

All purchases are made with the greatest of care, and pains are taken to obtain the required standard of quality and also the right prices. Mr. Bradley gives this work his special attention. By the side of his desk is a cabinet containing letter files, one of which is used for letters containing quotations on each line of goods bought in large quantities. Letters containing the most recent quotations are kept in these. In the back pocket of each file is slipped a card on which quotations are noted as they are received. The style of the quotation card for paper boxes is reproduced in Fig. 37. It will be seen that

MEMORANDUM OF REMITTANCE.
from
ATLAS MFG CO.,
WIRE AND SHEET METAL SPECIALTIES

125 Water St., New Haven, Conn., Jan. 15, 1904.

The Thomas Jones Paper Box Co

Gentlemen

Enclosed please find our check in payment of your account as follows:

Invoice of Jan. 3rd \$ 62.45

Discount for cash, 2% \$ 1.24

Freight allowance, 4% per bill \$ 4.38

Check enclosed \$ 56.83

If correct, no acknowledgment is desired.

Yours very truly,
ATLAS MANUFACTURING CO.,

Fig. 38.—Remittance Blank.

this gives, in tabulated form, the quotations as received, forming valuable information in buying.

All orders for purchasing are made out on the ordinary letter head of the firm, a carbon copy being made. On these orders, especially those for Sheet Steel, Wire, &c., the required tests are plainly stated. These tests are always made in the factory on all metal for manufacturing received, and if the metal does not come up to the required high standard it is promptly rejected. All orders sent out are stamped with a rubber stamp with the following:

If there are any particulars regarding this order which are not specified with sufficient fullness and clearness to preclude error or misunderstanding, advise us before executing.

The carbon copies of the orders are filed in a clip file hung near Mr. Bradley's desk, where they can be easily referred to. When the goods on an order are received, tested and the bill found to be right, the carbon copy is removed from this file and is permanently filed. When goods are ordered, note of the fact is made on the proper card in the running inventory, which will be described in a later issue.

The form shown in Fig. 38 is used in making remittances for goods bought. This, it will be seen, itemizes the allowances made. Near the bottom, in large type, will be noted the words, "If correct, no acknowledgment is desired," showing that the Atlas Mfg. Company believe that the cashed check is the best receipt.

BILLING DEPARTMENT.—Page 110.

All bills are made out by pen, and are copied by means of the letter press. The comptometer is used in figuring the extensions of bills and the taking off of discounts.

OFFICE ROUTINE.—Page 120.

All details of the office are carefully taken care of in the most systematic manner. Every effort is made to avoid mistakes and to prevent unnecessary work. New and modern appliances are introduced wherever they can

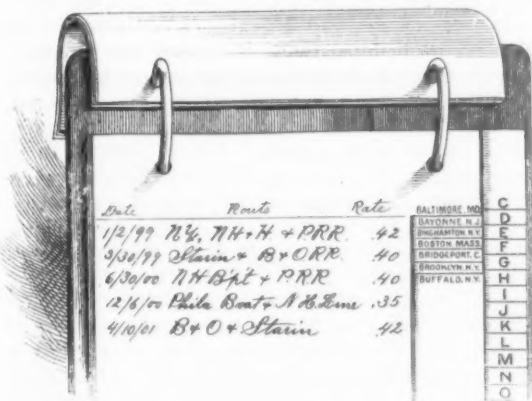


Fig. 39.—File of Freight Quotations.

be used to advantage. One way in which this is done is by the use of the comptometer, on which all additions are made, it being more accurate and quicker than the usual method of adding. This machine is very useful for multiplying and calculating discounts.

A valuable help in deciding how to ship goods is in the file of freight quotations, shown in Fig. 39. This is a simple filing board with a loose letter index. In this, under B, for instance, are placed sheets, one for each town or city beginning with B, to which they ship freight. Notches are cut in these sheets by two cuts, one parallel to the right side edge and parallel to the top. These notches are all of the same width, but of one line difference in height. By referring to the illustration, it will be seen that the notch for the Bayonne sheet is not quite as long as that for Baltimore, and that the notch for the Binghamton sheet is not as long as that for Bayonne. The top sheet shown is the Baltimore sheet. On this, it will be observed, are placed the different freight quotations as they are received. First is given the date, then the route and then the rate. This file serves to enable them to easily make shipments by the cheapest route. One advantage of this file is that it enables them to tell immediately whether customers deduct the correct amount for freight charges when sending their remittances.

In the office is kept a scrap book containing samples of all printed matter, forms, circulars, &c., that the house have issued. Another scrap book serves for a copy of the forms of all circular letters that have been prepared and sent out, or are now being used. Still another scrap book is utilized for copies of all the advertisements of the Atlas Mfg. Company, and for clippings of all writeups that have been given to their goods in the trade publications.

(To be continued.)

PRICE-LISTS, CIRCULARS, &c.

Manufacturers issuing new catalogues or price-lists are requested to send to THE IRON AGE two copies—one for the Catalogue Department in the New York Office, and one for the Iron Age Library of Trade Literature in London.

CHICAGO SPRING BUTT COMPANY, Chicago, Ill.: Loose leaf illustrated catalogue of 29 pages, relating to Spring Butts, Ball Bearing Floor Hinges, Lavatory Door Hinges, Saloon Door Hinges, Fire Engine House Spring Hinges, Door Springs, House Numbers, Kick or Push Plates, Door Pulls, Shoe Blacking Foot Rests, Combination Latch Handle and Hasp, Barn Door Hangers and Track, &c.

THE UNITED STATES REGISTER COMPANY, Battle Creek, Mich.: Jones Side Wall Registers and Ventilators are shown in a catalogue and price-list.

THE J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Report of the Stevens competition as given in the *St. Nicholas Magazine*. This is contained in an attractive pamphlet.

THE BILLINGS & SPENCER COMPANY, Hartford, Conn.: Illustrated pamphlet of Billings' Patent Improved Adjustable Automobile, Shop and Pocket Wrenches.

RICHARD ECCLES COMPANY, Auburn, N. Y.: Illustrated catalogue and price-list of Carriage and Wagon Makers' Forged Irons. These include Shaft Couplings, King Bolts, Body Loops, Clips, Stump Joints, Canopy Top Standards and Sockets, Fifth Wheels, Step Pads, Bicycle Cranks, Devises, &c.

STOWELL MFG. & FOUNDRY COMPANY, South Milwaukee, Wis.: Catalogue No. 3, devoted to Haying Tools. These include Carriers, Forks, Siings, Pulleys, &c. The catalogue also illustrates Barn Door Hangers, Stay Rollers, Clevises, Wrenches, &c.

THE BUILDERS' SUPPLY COMPANY, Indianapolis, Ind.: Catalogue devoted to Push Button Door Bells, Gongs and Rotary Door Bell Plates. The Bells are referred to as requiring no winding and as never running down.

MICHIGAN SPROCKET CHAIN COMPANY, Detroit, Mich.: "Mill Special, No. 3." This catalogue relates to Link Chain Belting, Detachable Carrier, Roof Top Transfer Chain, Riveted Pintle Chain Belt, Sprocket Wheels, Spiral and Square Tooth Clutches, Elevator Arms, Malleable Iron Buckets, &c.

THE BRONSON-WALTON COMPANY, Cleveland, Ohio: Illustrated catalogue of Never Burn Pans, including Bread, Dripping and Double Roasting Pans.

HARDWARE SUPPLY COMPANY, Grand Rapids, Mich.: Illustrated catalogue of Furniture Hardware, including Door Latches and Catches, Spring Latches, Spring Bolts, Toilet Hinges, Desk Lid Supports, Shelf Supports, Casters, Cupboard Turns, Door Checks, &c.

J. I. CASE THRESHING MACHINE COMPANY, Racine, Wis.: Sixty-second annual catalogue of Traction Engines, Portable Engines, Threshing Machines, Separators, Stackers, Horse Powers, Weighers, Loaders, Baggers, &c.

A. B. FARQUHAR & Co., York, Pa.: Machinery catalogue of Portable and Stationary Engines and Boilers, Traction Engines, Saw Mills, Shingle Mills, Cut Off Saws, Separators, Wind Stackers, Rice Threshers, House Powers, &c.

HIPOLITO SCREEN & SASH COMPANY, Los Angeles, Cal.: Catalogue illustrating well made Screens for careful customers. These include Screen Door and Window Screens, Screen Hangers, &c.

RHINELANDER MFG. COMPANY, Rhinelander, Wis.: Illustrated catalogue and price-list of Refrigerators, including the Rhinelander, made from solid ash; the Rhinelander Grand, made from solid oak, and the Oneida Cleanable, made from elm. Each of these are made in a variety of styles and sizes. Another Refrigerator, the Rhinelander Special Solid Birch, is made in one style of two sizes. Among the features are removable galvanized ice chamber, adjustable and sliding shelves, solid brass trimming, ball bearing self retaining casters, zinc and white enamel linings, removable drip cup and waste pipe.

J. A. TAGGART, Toledo, Ohio: Illustrated folder relating to the Whitmore Patent Glue Cookers, Glue Pot Heaters, Extra Heavy Copper Pots, &c.

LA CROSSE STEEL ROOFING & CORRUGATING COMPANY, La Crosse, Wis.: Illustrated catalogue relating to Eaves Trough and Conductor Pipe, Hangers, Hooks, Cut Offs, Ridge Capping, Cornices, Window Caps, Steel Roofing, Corrugated Iron, Steel Brick, Rock Face Stone, Metallic Shingles and Shutters and Embossed Steel Ceilings.

SIMMONS HARDWARE COMPANY, St. Louis, Mo.: Catalogue No. 448, containing illustrations, descriptions and prices of Baby Carriages, Refrigerators, Ice Cream Freezers, &c.; also Catalogue No. 447, devoted to Bicycles and Bicycle Accessories, &c.

W. F. JANEWAY, Columbus, Ohio: Special Catalogue No. 9 of hand made Charcoal Tin Pieced Tinware, including Wash Boilers, Strainer Pails, Dairy Pails, Dish Kettles, Dinner Pails, Lard Cans, Lanterns, &c.

AMERICAN DESK & STOOL COMPANY, Horace Dickerman, successor, 30 Howard street, New York: Catalogue No. 75 of Dickerman's Desks, Tables, Stands, Letter Presses, Wire Letter Trays, Waste, Letter and Mail Baskets, Tape or Telegraph Baskets, Filing Cabinets, Wardrobes, Settees, Couches, Chairs, Stools, &c.

"THE HISTORY OF OUR ORGANIZATION."

G. A. GUTMAN of Hochheimer & Co., Orlando, Cal., made the following unique address at the banquet marking the close of the recent annual meeting of the Pacific Retail Hardware Association at Sacramento:

Mister Toast Master, Shendlemens und Drummers vot is misrepresenting some wholesale houses: I hafe been invitationed by de Committee of Disarrangements to say a few vords dis efening, und I vos insctructed to make mine own selecshun ov enny old subject or subjects. As we hafe mit us here dis efening quite a number ov old subjects, id iss mine prifilege und also mine intentions to dissertation on some ov dese old relics, but at de same dime saying nodings vot could be consrtued as bersonalities, or make you feel indignashuns.

Ve are representashuns ov de Hardware inderests ov de Shtate ov California, und as such, are separashuns into two dishtinctive assoshiashuns, vot is known und recognishuns as de Wholesale Assoshiashun, und de Retail Assoshiashun. De objects und de aims ov dese two assoshiashuns is shoost alike, und if a composite fotograf vos taken with a migroscope ov dese two hightbinder unions, it would developments a very large picture ov a twenty dollar gold pieces.

THE POOR RETAILER.

Before de establishments ov de Retail Assoshiashun, de wholesaler was monopolizashun all dis union blissness by himself, und de consequence vos dot he vos getting richer und richer, inch by inches, und de retailer, not imaginings dot he vos being robbed effery day by de wholesaler, vos getting poorer und poorer, not inch by inches, but feet by yards. Und de wholesalers vos not only dispossessioning de retailer ov all his money und real estates, but de dissensible und foolishness ov a retailer vos opposishoning himself at all times von mit de odder, und vorking on dot lovely und bootiful brinciple dot opposishun vos de life ov trade. Vell, dey vos soon discoverashuns dot dey vos dead vones. Den it vos dot some Moses shtuck his head outside ov de bullrushes, und leaded dem on to Marysville. Dey all got dere feet together, und after a whole lot ov drinking, shmoking und banquets, dey mixed themselves togedder in von pot und organizashun demselves into a retail assoshiashun.

Dis meeting at Marysville vill be handed down to posterity as de Intruducshuns into de Shtate of California ov 5-cent seegars, und de wholesalers is de boys vot is shmoking dem. De wholesalers und dere money shpenders, vich iss de drummers, vos also at Marysville, but dey vos on de outside lines und could not discoverashuns de fine points of de game. Dey vos invitashuned to come outside ov de wet, de salt bottle vos handed around, und a big pow-wow vos shtarted. Dis is dog language for a general mix-up, vere efferybody does de talking und says

nodings, und you come to a peaceable-on-top-ov-de-surface undershtanding.

At dis meeting, all de blames for de disturbments und de troubles vos passed around on a hot brick from de retailer to de wholesaler, und back again, but dere vos nobody vot vould put it in his pocket. Dey vos shoost like a whole lot ov beoples vot vos trying to make der blame und de establishments dot Sampson von de battle of San Diego de Cooba, ven efferybody vot is possessions ov enny educashuns knows dot Sampson died in de Bible sefferal years before de discoverashuns ov de Island ov Cooba.

Vell, dey all shwallowed a lot ov hot air vich came from de shmoking, efferybody vent home satisfacshun mit himself, de prices ov Hardware jumped up in de sky, und de manufacturers, who shmoke two-bit seegars, vill keep dem in de air so long as beoples are foolishness enuff to build houses, railroad companies build railroad lines, und forget to build cars vich can transportatshun de producings.

ASSOCIATION STEW.

Mr. John Scotch Vite vos electioned president ov de Retail Assoshiashun, und he is dere mit de goods yet, und Johnnie on de shpot. But all de droubles und dissatisfactions dot both de assoshiashuns experience, comes from von item on de bill ov fare, vich is dere all de time, und vich efferybody mush shwallow, or dey will be liability to got dyspepsia. Und dot iss a kind of a shtew vich dey calls glassificashuns und differentshuls. Effery member ov both assoshiashuns must dis shtew eat all de time, odderwise it vill be bositifeness dot it will be impossibility to even shmoke a five-cent segar. De shtew iss all right made, but von fellow comes along und makes a little more bepper in it, anodder fellow shticks in some cayenne bepper, and den anodder von puts in some to-bashco sauce. Dot settles it. Efferybody goes home und makes his own glassificashuns und differentshuls, und den ven somebody gets discoverashuns, it developments into a liars' verein, und ve have a picnic. Und ve don't go to Schentzen Park to have our picnics, but to a meeting blaces vich is someding like de inside chamber of a highwayman's or steel trust's den, vich dey call Anvil Hall. Here you meet de Executive Committee ov de wholesalers, vich is de brains ov de whole push. Dere is Wakefields Bakershop, Andrew Golf Carrigans, Lawn Tennis Shcott, Alfred Shancey Depue Rulofsohn, Wilhelm Transportation Wheeler, Brace Game Hayden, Foxy Grandpa Watkins, und several others of de noability. Here de droubles is all investigashuned, und den efferybody agreements to shtand by, to shwear by, und to live by dot shtew, und as long as dese agreements are not violations, it vill be uncapabilities not to make your bizzness brofitable und satisfaction.

De balance of dis shtory vill be found in Bradstreet's History of de Shtate of California.

DEATH OF JAMES T. CUNNINGHAM.

JAMES T. CUNNINGHAM, president of the Cunningham Hardware Company, Mobile, Ala., died Tuesday, February 16, from an attack of pneumonia. He was taken ill Sunday, February 14. Mr. Cunningham and his brother succeeded to the business established by their father, the late James Cunningham. James T. Cunningham was the son of James and Kate Cunningham and was born November 19, 1868, at Eutaw, Ala. He was reared and educated in Mobile. He was unmarried and is survived by one sister and five brothers. He came of sterling ancestry and was a man of high character, well endowed in heart and mind and public spirited.

DEATH OF JOHN H. TEBBENHOFF.

JOHN H. TEBBENHOFF died suddenly in Boston, Mass., Monday, February 15. He caught cold three days before his death, which, resulting in pneumonia, terminated fatally. For the past two years he had been representing the house of Max Klaas, 298 Broadway, New York, importer of Cutlery, as a traveling salesman, his trade being in New England and the West. For the preceding 27 years he had been identified with Vom Cleff & Co., importers of Hardware and Cutlery. Mr. Tebbenhoff was born in New York and was in his forty-seventh year.

OHIO HARDWARE ASSOCIATION.

(By Telegraph.)

THE tenth annual convention of the Ohio Hardware Association, the oldest retail Hardware association in the United States, opened at the Hollenden Hotel, Cleveland, on Tuesday, February 23. In spite of weather most unpropitious on account of rain and flurries of snow, the members were in good attendance, as were many of the manufacturers' representatives. T. James Fernley, secretary-treasurer of the National Hardware Association, was also among the visitors.

Following a brief morning session of the Executive Committee the convention was called to order at 2.30 by President W. P. Bogardus of Mt. Vernon. Divine blessing was invoked by the Rev. Casper Wister Hiatt, D.D., after which the Hon. Tom L. Johnson, Cleveland's well-known Mayor, gracefully and eloquently welcomed the visitors to the city. Vice-President J. F. Baker responded to this welcome in a few well chosen remarks. The roll call of members and the reading of the minutes by D. R. Burr, Piqua, the corresponding secretary, was followed by the annual address of President Bogardus, as given in another column.

Remarks of R. R. Williams.

The chairman then called upon R. R. Williams, Hardware editor of *The Iron Age*, for some remarks. Mr. Williams said that he had presented to the president of the association, and laid before its Executive Committee, a communication from the president of the New York State Association of Retail Hardware Dealers vouching for him as a member of that association, and instructing him to convey to the members and to the association their heartiest and most fraternal greetings. He came also, without having a written commission, as the representative of the Pennsylvania association. "It was my privilege," he continued, "last week to be with them during all the sessions of their meeting, and they directed me by a unanimous rising vote to carry to you their greetings and to wish you continued success in the great work that you are doing. I rejoice in these courtesies, because it seems to me they express the

SPIRIT OF FRATERNITY,

which is, after all, the underlying element in the gatherings. The work is not all done. The lines are simply laid down along which your efforts should be conducted, and it now remains for you as an organization to do the things that you are called upon to do for the advancement of the interests of the retail Hardware merchants of Ohio. One of these things is for you to see to it that it is understood in the trade at large

WHAT THE INTERESTS OF THE RETAIL MERCHANTS ARE.

"Up to only a year or two ago the retail merchants had been very reserved. They had been unwilling to lift a word of protest when their rights had been in any way encroached upon. It is now getting to be somewhat different. It is in the power of these retail merchants' Hardware associations to do far more than has yet been accomplished to remove from the path of the retail merchant the obstacles to success. In this connection let me say to you how gratified the trade of the whole country has been and is that the retail organization was officially represented at the last great meeting of the jobbers and manufacturers at Atlantic City; that when the National Hardware Association, made up of jobbers, and the American Hardware Manufacturers' Association met there were also the representatives of the National Retail Hardware Dealers' Association to explain what the needs of the retail merchants were, and to make plain to jobbers

and manufacturers alike what they could do to advance the interests of the retail trade. I am very proud to stand so near to your president, a man honored in Ohio and honored wherever there is a retail Hardware organization, for his wisdom, his balance, his eloquence, and his high character. At the Atlantic City meeting he had a worthy compeer in Mr. Corey, the secretary of the National association. And I tell you, gentlemen, it gave to those who were gathered there, the jobbers of the country and the Hardware manufacturers of the country,

A NEW IDEA OF THE CALIBER AND THE PURPOSE,

the intelligence and the wisdom of retail Hardware merchants, because your interests and the trade at large were so ably represented. The jobbers, you know, have respected the retailers, and the manufacturers have had more and more to do with them. But, after all, they did not know until Mr. Bogardus and Mr. Corey spoke what the ability and the dignity and the worth of the retail Hardware interests are. It was a help to every retail merchant, and I say to you that one of the things that are very desirable is that at these great gatherings of the jobbers and manufacturers, coming twice a year, there should also be a representative of the retail trade. I say this, occupying as I do an impartial position, having relations with all these three departments of trade, and I think it will be for the welfare of all if delegates from the National Retail Hardware Dealers' Association are invited to participate in the great councils of the other branches of the trade from whom they purchase their goods. It will be for you in your wisdom to take this suggestion and treat it as you will. I favor this because I believe it will

HASTEN THE COMING OF A PERFECT UNDERSTANDING

between the manufacturers, the jobbers and the retailers. I do not think that trade annoyances and disturbances can be removed until each of these great classes has stated in the presence of the others what their interests are and what their wishes are. When they counsel together they will be able to find some way by which many of the things which trouble retail Hardware merchants and manufacturers and jobbers will be corrected and a better condition induced."

The following resolution was introduced by Mr. Baker and carried by a rising vote:

Resolved, That our thanks be tendered to Mr. Williams for the courtesies and greetings he has brought to us from the associations of New York and Pennsylvania, and that now as he continues on his journey to the associations of Illinois, Missouri, Minnesota, and New York, he present to all of these associations our hearty fraternal greetings and our best wishes for their continued growth and success.

J. P. Duffey of Greenville moved that R. R. Williams be elected a member of the Ohio Hardware Association and be exempt from dues. This was seconded and unanimously carried. Mr. Williams accepted the honor conferred upon him, but said he hoped that when he sent his check it would not be returned.

Committees.

The president then appointed the committees on Resolutions, Nominations, Question Box, Laws Relative to the Hardware Trade, and on Memorial.

J. S. Brainard's Address.

J. S. Brainard of the Johnson & Jennings Company, Cleveland, made an interesting address on "Trade Relations Between the Retailer and Manufacturer," in which he pointed out that the desire of the manufacturer is so to dispose of his product as to reach the retailer in the best way and thus to obtain the greatest sales.

Captain Hauke's Remarks.

Captain J. H. Hauke of Wooster, who is hale and hearty though 87 years old, and who has been in the Hardware business for 61 years, made some most entertaining off-hand remarks about the trade which were enthusiastically received.

Secretary Burr then read a letter from the Cleveland Builders' Exchange offering the freedom of its rooms in the Chamber of Commerce Building to the members during their stay in the city. The session then adjourned.

During the evening the local Reception Committee, of which C. S. Van Wagoner of the Van Wagoner Company is chairman, entertained the members by a theater party at the Empire Theater.

WEDNESDAY MORNING SESSION.

President Bogardus called the Wednesday morning session to order promptly at 9.30, and relinquishing the chair read an address on the National Association, which is presented elsewhere.

Financial Secretary's Report.

D. R. Burr read the report of the financial secretary, W. C. Jones. This showed a balance on hand of \$236.38.



W. P. BOGARDUS.

In addition to this, say, \$419.44 loaned to the Fire Insurance Company is due.

Mr. Burr next read his report as corresponding secretary, which is given in another column.

Parcels Post.

Parcels Post was the subject of an interesting paper by C. A. Hutsinpillar, which is also given on another page.

Mr. Bogardus explained some of the fallacies used in arguments for the parcels post in a forceful way. Mr. Hutsinpillar followed with some additional remarks and urged the members to work very hard against the bill. He then moved that the members resolve themselves into a committee, the duty of every member being to get protests from associations in his county against the Parcels Post bill. This was unanimously carried. The president then suggested that every member write to his Congressman. Mr. Scott said the members should educate the farmers and show them the dangers of the bill. Mr. Wiseman replied that the farmers have been talking about this matter for months, and are better posted on it than the average man. Granger conditions are very strong and all the grangers have talked and are talking about it. He then moved that as a body the association send every Congressman and Senator from the State later a protest against the passage of the Parcels Post bill. Daniel Stern of the *American Artisan* said that from his knowledge of

Congressmen he felt that protests from organizations were but of little value, as organizations have no votes. He urged that the writing of personal letters to the Congressmen be done.

Mr. Scott replied that he believed the protests of organizations were of value and that they do not prevent the members from writing in their individual capacities. In the discussion that followed information was asked regarding the number of members who had written their Congressmen. A show of hands of those who had written was called for and over half the members raised their hands. The other members then signified their intention of writing. Considerable general discussion followed, in which much interest was evidenced. The motion of Mr. Wiseman was then unanimously carried.

An invitation from the Sherwin-Williams Company to visit their plant was then read, and the convention accepted it with thanks.

Question Box.

The Question Box was next opened, and the following questions discussed:

Is the complaint of poor goods the fault of the manufacturers or the retail dealers, who cater to the dear public's demand for low priced goods?

What is the experience of the country Hardware dealer handling Implements and Farm Machinery?

Is there any profit left after paying for the expense of selling?

What can we do with misleading and misrepresenting advertisements?

On motion of Vice-President Baker the reading of the rest of the questions was deferred to the afternoon session, and the meeting adjourned. The remainder of the convention will be continued in executive session.

PRESIDENT'S ANNUAL ADDRESS.

BY W. P. BOGARDUS, MT. VERNON, OHIO.

For the tenth time we are gathered in convention. A decade has passed since the thirteen gathered at the Neil House, in Columbus, in the hope of accomplishing something looking to the betterment of conditions surrounding the Hardware trade. They have been ten years of progress. During this time there have been organized eighteen State associations, besides some twenty-two more associations more or less local in their character. The eighteen State associations have all been affiliated into a National Retail Hardware Dealers' Association. It was hoped that by such an organization a greater influence could be built up, and that results could be brought about better than by State associations.

AS WE LOOK BACK OVER THE DECADE OF OUR EXISTENCE and try to sum up the results, there cannot but be a feeling of satisfaction at our progress.

During the first years of our existence a large amount of the time of your secretary and Grievance Committee was occupied with complaints of retailer against jobber, some just and soon settled, and some otherwise and very hard to get any satisfaction out of. But during the last two years the complaints have been few and far between, and all have been arranged in a satisfactory manner. The relation of the jobber to the retailer has greatly improved. There is a better understanding between jobber and retailer and complaints are much more easily adjusted.

WE HAVE HAD A PROSPEROUS YEAR.

Providence has been kind to us as a nation and as individuals, and the return of our annual convention finds us nearly all here. For those who have crossed the river and whose faces we shall never see in the flesh again we have only memories. To those who have left our ranks to engage in other avocations we have only good wishes for their future prosperity. To those who are still in the harness of active business we have words of encouragement. There are some things that have come across our

path that at first seemed threatening. Some of the great corporations that looked so menacingly on the horizon as they came into view a few years ago do not inspire us with the same dread they once did. Their sides are shrunken, and the water that has been dripping from their sides for the last year or two has washed the glamour from the eyes of the common stockholder, and he has his experience. Prices have not fluctuated as in former years, and the steadiness of the markets has been a good thing for all of us. Speculative buying has not been as profitable as in former years, and the results of such business have been far from satisfactory.

ONE OF THE GREAT DANGERS THAT CONFRONT US IS UNFAVORABLE LEGISLATION.

Socialists have sown the seed of governmental ownership of transportation facilities, and are seeking to make the government enter into competition with private enterprise. As a writer on economics very truly says, "The theory of reducing transportation charges by furnishing a commercial service at reduced rates, by means of tax-supported, government-owned facilities, in competition with private enterprise, is wholly wrong. No country in the world, notwithstanding their canal systems and State-owned railroads, has transportation facilities that are comparable with those of the United States in points of time required and charges for transportation. These facilities are the creation of private enterprise, and are entitled to protection from, not assassination by, the government."

This Socialistic seed is bearing fruit in the shape of vicious legislation. To combat these theories and to help to create a more intelligent idea of governmental functions of our government is well within the sphere of usefulness and duty of every Hardware man who loves his country.

THE GRIEVANCE COMMITTEE

report no unsettled complaints. We look for a continuation of such annual reports as the organization of associations continues.

THE INSURANCE FEATURE

of association work is very satisfactory. I am able to report to you that it has been a successful undertaking, and that the success it has had confirms us in our opinion of the wisdom and business foresight of the men who inaugurated and have carried it thus far so well.

MR. BURR'S SERVICES.

During the past two years the success of the association has largely been due to the faithful services of your secretary, D. R. Burr. In season and out of season he has been indefatigable in his efforts to bring greater success to the Ohio Hardware Association.

How far his efforts have gone and what he has accomplished needs no telling by me. You can see for yourselves. But I wish to bear this public testimony to his prompt and faithful service at all times. As the years go by the work of the secretary must of necessity increase. To an active business man it is getting to be a serious burden. The time necessary to perform the duties of secretary in a satisfactory manner is a drain on our resources that few of us can stand. I refer this subject to you, that you may in your wisdom suggest some solution that will be more satisfactory than the present arrangement. I call your attention to the gradual increase of

LOCAL ASSOCIATIONS OF BUSINESS MEN FOR MUTUAL PROTECTION

against that class of citizens who are ever ready to claim that the world owes them a living and are very prompt to demand that their claims be recognized, but are never ready to pay what they owe. I cannot but feel that the organization of such associations will accomplish what individually we never have been able to do—to collect our accounts.

With the gradual increase in our membership and a greater knowledge of our dangers and of our needs we must grow larger. And as long as wise moderation characterizes our action we must grow stronger—a power for good, a power for conserving the rights of our members and a recognition of our relations to others. So that a mutual respect and confidence will be established between us and our friends the jobbers.

TO DO THIS MEANS THAT WE ALL MUST WORK.

A large membership upholding the officers will bring permanent prosperity. A courage and power is put in the hands and hearts of the officers when they feel that the members approve their actions and are backing them up in their endeavors to advance the interests of the Hardware trade that nothing else will do. We all have an individual work to do. We have a competition that is relentless, whose motto is "Conduct your business as if you were running a store to put your competitor across the street out of business." We need not only every association but every individual to realize the importance of the work, and the necessity of meeting such competition with a determination to stamp it out as far as possible. It may cost us something to do this, but we have learned ere this that things that have value cost something to get. If the retail dealers will meet the issue squarely as it comes, in relation to the catalogue houses, then the time is coming when the catalogue houses will lose their power, and people will find each year less reason to patronize them. Organized work supplemented by individual effort will accomplish the things we desire. And now we may properly

INVOICE OUR PROGRESS

and determine the value of our association work and what it has done for us. Our stores are in better shape; we



TOM L. JOHNSON, Mayor of Cleveland.

have more system and greater cleanliness and order. We are taking more pride in the display of our goods. New ways of keeping and showing our stocks have been adopted. There is greater taste in window display, more orderly ways of keeping our catalogues, and improved ways of keeping our accounts. These and much more can be fairly charged to the credit of the association. The work of the association has been greatly helped by cordial and loyal support of the trade papers. To them we owe much. They have been our prudent and judicious friends, and their counsel has been invaluable. Our invoicing of the value of our association is over. The profit of the investment has been, I hope, clearly shown, and we start on another year with hope in our hearts and a strong determination to make a success of the business we have chosen for our life work.

REPORT OF CORRESPONDING SECRETARY.

BY D. R. BURR, PIQUA, OHIO.

For the second time, it becomes my duty to give you a report of the office of corresponding secretary. In presenting this, the tenth annual report, I wish to express my appreciation of the honor you have conferred on me and to assure you that it is with great pleasure that I now report to you the work of the office during the year just closed.

Immediately after the close of the convention last year some time was taken in revising our mailing list, this being done by the use of Dun's Commercial Book. We

have found, however, that this method is not a satisfactory one, as in this manner we are unable to keep track of the changes of firms made during the year. Some suggestions on this line, I know will be appreciated by my successor. The members individually may help in this matter by reporting to the secretary any changes that they may learn of.

Being selected by your body as an alternate to the National Convention and by the kindness of the delegates I was in attendance at that convention last March. During this period many new ideas referring to the work of this office were brought to my attention by other State secretaries whom I found largely represented the delegates from other jurisdictions.

During this convention M. L. Corey, secretary of the National Association, called a special meeting of State secretaries for the purpose of formulating some plan of action regarding our circular work to be performed through-



DWIGHT BURR.

out the year. It was the unanimous opinion of the secretaries in attendance at this meeting that a meeting of this nature be arranged each year, during the National convention, for the further instruction of the several secretaries. By this method it is hoped to work more upon the same lines, more in unison and more to our mutual advantage.

That your delegates to this convention were alive and awake as to the needs of the National body has been thoroughly demonstrated to you in the selection of our worthy president as president of the National Association. Ohio is to be congratulated. How well our worthy president has performed this national duty is demonstrated by the action of the National Jobbers' Association in passing resolutions to the effect that they would stand by us in fighting that great bugbear, the Parcels Post Bill. These resolutions were the outcome of an address to that convention by Mr. Bogardus.

At the close of the Ninth Annual Convention our membership showed a small increase. We have also gained during the past year, but the gain is not as large as we had hoped for.

THAT WE NEED MEMBERS IS VERY EVIDENT.

That by having a majority of the dealers of this State as members we can command more respect and attention from manufacturers and jobbers than at present is not questioned. Now we have before us the question, How shall we obtain additional members? If we had more Parcels Post bills to contend with we would get them. This bill, to which this office has devoted considerable time, has increased our membership some twenty-five or thirty new firms. That the bill itself is responsible for these new members has been demonstrated to us by the fact that

these new members have come in in answer to appeals issued by this office and by using the proposed bill to show one of the great troubles we have to contend with.

We are satisfied from our experience in the past two years that a great percentage of the Hardware dealers in this State cannot be reached by appeals from this office and that the only way to get them is by

PERSONAL CANVASS.

That the individual members of this association could do more good by personal canvass of their neighbors than any number of letters written by this office we are quite certain. Do not expect your officers to do it all. We are glad to say in this respect, however, that some of our members during the year just closed have been a great help to us in this particular.

We also wish to make note of the help contributed by the travelling salesmen, representatives of the different jobbing houses throughout the State, they having also contributed information by which we were able to get new members.

Your secretary at all times is willing and anxious to receive your ideas and advice on any of the different lines of work that come under this office.

We have obtained this year, through direct influence of letters sent out by this office, from twenty-five to thirty new members. That in union there is strength is proven by the advance in prices catalogued by the mail order houses. It is your duty to obtain one of these mail order house catalogues and report any exceedingly low prices which you find quoted therein to your secretary, who will be only too glad to take the matter up with the National body, where, you may rest assured, it will be taken care of.

You ask the question: Why has this been done? Simply this, that the manufacturers have been approached by representatives of over 4,000 retail Hardware dealers (members of the State associations affiliated with the National) and have been made to see where

SUCH COMPETITION WAS UNFAIR

and by their selling this class of houses their product was greatly injurious to the legitimate Hardware trade. This could not have been accomplished had you or I individually asked this of the manufacturers, but when you and I together make such requests it is seen by the manufacturer in a different light. Numbers count. Remember this and do not expect your officers to be totally responsible for the growth of the Ohio Hardware Association. You yourselves should not forget your part. In order that you may know as to the

AMOUNT OF WORK DONE BY THIS OFFICE

during the past year we would say that on September 15th we mailed to every retail Hardware dealer in the State of Ohio a circular letter containing a portion of the proposed Parcels Post bill, calling their attention to what this bill might do if made a national law. On November 2d another letter of this same nature was mailed, together with a printed extract from this bill. About this time five hundred copies of C. L. Griggs's booklet "Parcels Post Paralyzes Prosperity" was mailed to our members. That this booklet did a great amount of good is unquestionably proved from the fact that we have numerous inquiries for additional copies. Early in December we mailed to each Hardware dealer in the State a large card setting forth the dates of this convention, advices as to headquarters, hotel rates, railroad rates, features of the programmes we have in use at this time, and with the request for the dealer's attendance at this convention. On December 7th another circular letter on Parcels Post, incorporating a copy of a letter sent a Cleveland Hardware man by a Chicago mail order house refusing his request for one of their catalogues, also an appeal in this letter urging the dealer to write his Congressman, asking him to vote against this Parcels Post bill, showing him where the bill if made a law would injure the country merchant more than any other, and showing him the selfishness of the parties interested in having the bill become a law. I am glad to say that our members responded nobly to this appeal, and we now have on file in our office letters from Congressmen Thomas B. Kyle, J. A.

Beidler, T. E. Burton, A. M. Nevin, J. H. Southard, H. C. Garber and C. H. Grosvenor. These letters have been sent to us by our members, and in a large majority of cases the Congressmen advise that they will respect these requests and protect our interests.

By methods of this kind we will do more good for our association and ourselves than by any other.

On February 10th another circular letter, urging attendance at this convention, together with the programme in use at this time, was mailed each dealer, State secretary, all trade papers and magazines. At other times during the year we mailed each dealer a small booklet containing a copy of the resolutions, list of members, constitution and by-laws of this association, and a return postal card asking to be advised as to whether or not the dealer would attend this convention.

In summing up this correspondence we find that from nine to ten thousand pieces of mail matter have been handled, exclusive of a large amount of other correspondence. We are continually in receipt of letters from all over the United States, letters which must be answered, information asked by other State secretaries and a standing request from our National secretary for something on Ohio matters for use in the *National Bulletin*. At each issue of this *National Bulletin* Secretary Corey has sent us from twenty-five to thirty copies, which we have tried to distribute to our non-members to the best advantage.

In November our worthy president and myself met in this city and arranged for this meeting. Through the kindness of George T. McIntosh we were able at this time to meet a number of the manufacturers and jobbers, a committee of those who are giving us this entertainment, and it is due to these gentlemen to a great extent that these arrangements are perfect.

COMBINING TWO OFFICES.

We have now served you to the best of our ability for the past two years as your secretary, and while we have made mistakes we have tried to see things clearly and to the advantage of the dealers throughout the State, and in this connection I wish to say that the work of this office is becoming so large that we can hardly ask a member of this association who has his own business to look after to accept the honors. There is time devoted to the business of this association at the expense of personal business affairs, and I hope that you will allow me to suggest the change which I mentioned in my report last year regarding the combining of this office with that of secretary of the insurance company, if it can be arranged, and we see no reason why it cannot. Other States have this arrangement and find it a successful one, the incumbent receiving a salary sufficiently large to require that he devote his whole time to the work of the combined office. I trust that some steps in this regard will be taken during this convention.

SECRETARY SHOULD BE A NATIONAL DELEGATE.

In closing this report I wish to remind you, and especially the Committee on Nominations, that it is absolutely necessary that your secretary be made a delegate to the National Convention, so that he may attend the meeting of the State secretaries which will be held during the convention. I would also suggest that you keep more in touch with the working of this office. Write your secretary oftener. If you have nothing pertaining to association matters to write him about, write him a personal letter. He will appreciate a "jolly" I am most certain. I wish still further to suggest that it is absolutely necessary, in order to have interesting meetings, that you, the members of this association, take greater interest in them. To the president and myself this year, as in former years, has been left the compiling of this program, and I wish to assure you that it has been one of our greatest trials. You know as a rule Hardware men are a bashful and backward set, and we also know that a few of them have the gift of "gab," and these latter are the fellows who can make our meetings successful. When your secretary calls on you do not be afraid to acknowledge this gift, but remember that you have a duty to perform as well as the secretary, and help him out.

In closing, I wish to extend to our president, the mem-

bers of the Executive Committee and yourself my most sincere thanks for the kindness and good will shown me in the past two years.

ADVERTISING A RETAIL HARDWARE STORE.

BY J. C. FUHR, WILLIAMSBURG, OHIO.

This is my first appearance before a distinguished body of gentlemen such as compose this association, hence this is my maiden effort in preparing and reading a paper. Some time in the month of last December I received a letter from our worthy secretary, Mr. Burr, requesting me to fill a place on the program for this meeting, reading upon a subject of my own selection. My first impulse was to decline, but the thought came to me that if all were to do that there would be no papers read and no speeches made at our convention. Then I felt it an honor to be asked to read before such a splendid company of intelligent, wideawake business men, and without any further consideration as to my fitness or ability to prepare and read a paper I consented, and have regretted it many times since. Perhaps you will regret it before I am through, for I realize that there are plenty of educated Hardware men in this association who are far more able than I to discuss a subject to your profit.

I will present my subject in three divisions: First—A young man just opening a new Hardware store. Second—One who buys a Hardware store already established. Third—How to make advertising profitable to a business that has been long established. Now, turning to the first division,

ADVERTISING A NEW HARDWARE STORE.

I would say, first of all, to use all available means to make your business known throughout the entire community: Advertise in the newspapers, by posters and fence signs. Put up advertising cards of cardboard and tin wherever you can get permission to do so. By asking permission or buying space you secure protection for your "ad," and a permanent "ad" among the owners of the space and their friends. Get space on barns, bridges and other buildings, on all roads leading into your town. Have a good "ad" painted in those spaces, no two exactly alike, but invite the public to your store in such phrases as "Go to ———," "Come in and see us," "Visit John Doe," "Get the habit of going to John Doe's," etc. Give your "ads" a special similarity in the use of some sign, just as the manufacturers of goods use a trademark.

If you run a wagon, have a good one, have it well painted, nicely lettered and varnished, and keep it clean.

If you do not object to the old saying that "Fools' names, like their faces, are seen in public places," have a neat, light, red covered memorandum book printed in black ink, with your photo inside of cover. Have your name or firm's name on outside of cover, close to the top, both front and back; also about three lines of advertising matter with firm's name on top of every page inside. Have these books placed conveniently close to the front door and let it be your business to hand one to every new customer just before he leaves the store. Ask his name and address and put it in a memorandum book kept for this purpose, in order to have it for future use in advertising. It will be quite impossible for you to remember every customer, although they will know you at once.

SECURE THE NAMES AND ADDRESSES

of the carpenters, blacksmiths and other mechanics in your town and vicinity, and send each of them one of the memorandum books; also a personal letter written in ink on a neatly printed letter-head, requesting their acquaintance for mutual benefit.

During public meetings in your town distribute circulars advertising your house in the vehicles standing about the streets and livery barns. If a convention is held in your place and a printed program is used, see to it that your "ad" is inserted therein, giving an invitation to all to visit your store. As you get acquainted with new customers, write them to

MAKE YOUR STORE THEIR HEADQUARTERS

when they are in town. And at this point you can make lasting friends, especially among country people. The old people like to find a place where they can feel at home, where they and the young people have a few wants that

you can supply at a very small cost to yourself. Place a good-sized mirror in your store at a convenient place near the door, where the young lady or young man can arrange their headgear, ties, etc. Have a chair ready for the weary mother with the baby, and in the event of any of your customers spending thirty or forty minutes with you hand then a good magazine or daily paper to read.

Following the details named, it will surprise you to see what amount of advertising you have done, and the good results following it will prove the worth of it.

IF YOU HAVE BOUGHT OUT A WELL RUN, UP-TO-DATE ESTABLISHMENT,

continue the methods of advertising used successfully by your predecessor, improving on them in every way possible. When business is duller advertise the most, as the sole purpose of advertising is to increase trade. About December 1st have a neat calendar prepared, with a good sized pad, and have your firm name printed on it in large letters. Select one that is different from your competitors and other business houses; have a style of your own and let it be a handsome one. This is one of the most permanent "ads," and by it the entire family learn how to spell your name and know what kind of business you are in.

CUT PRICES.

I do not believe in nor recommend the announcement of cut prices, unless it is on special goods, not handled by your competitor. If he does any cutting, take advantage of it by causing your "ad" to quote the same prices—provided you can meet them. Never state that you have the best stock, the lowest prices and more goods than any other dealer in the county; but you can state that you have a better stock than ever before, at prices never before known in your store; that you have bought so low that customers cannot help seeing that are getting great bargains, etc. This is one of the points that will cause the public to admire you. If you promise anything in your "ad," if you guarantee a certain article,

MAKE YOUR PROMISE AND GUARANTEE GOOD,

and build up a reputation for reliability as to every statement made in an "ad." A reputation like this is the best advertisement you can have.

Take part in all public affairs in your town, or, in other words, be a useful citizen. Do not cater to any clique for the sake of trade, but be interested in all societies and organizations having the good of the community at heart. This, with a straightforward, unswerving, Christian example, will prove the best of all advertisements for your business. Never tease a boy or girl, as they will be men and women before you can realize it, and then be either for or against you; usually the latter, as they will remember with a feeling of resentment your treatment of them. I can recall, as doubtless many of you can, of my boyhood days, when some great, big, stand-in-the-door headed me off and threatened to cut off my ears. You remember when he kicked your dog. We have not forgotten such cases, and never will.

Under the head, "How to make advertising profitable in a long established business," I will only state a few general principles and add some practical suggestions. Use wrapping paper and paper bags with your "ad" well printed on them.

LET NO CIRCULAR LEAVE YOUR STORE WITHOUT YOUR "AD" ON IT.

Newspaper cuts of Tools, Implements, Stoves, Ranges, Machinery, etc., help greatly.

A clean, well arranged show window is a good drawing card. It will often stop the most busy man.

Your "ad" on railroad time-tables and interurban guides will frequently make new customers.

New and exclusive sale goods well advertised in street cars, depots, near school houses and post offices will help greatly. Use plenty of good "stickers," change your newspaper "ad" every week if possible. Make them spicy and interesting, for such advertising will bring results more quickly than the more dignified and commonplace way of wording them; make them read so snappy that the people cannot fail to notice them, and you will not fail in getting results.

You may ask:

HOW MUCH SHOULD BE SPENT DURING A YEAR FOR ADVERTISING?

I would suggest about $1\frac{1}{2}$ to $2\frac{1}{2}$ per cent. If you are doing business amounting to about \$25,000 a year, make your appropriation for advertising about as follows:

For calendars.....	\$75.00
For pocket memorandums.....	15.00
For fence signs.....	25.00
For cards.....	2.00
For barn signs.....	50.00
For lettering wagon.....	5.00
For progress and miscellaneous.....	25.00
For newspaper advertising.....	180.00
Total.....	\$377.00

If there should be two newspapers in your town, divide the amount between them, and contract for about 1,500 inches with each paper. This will give you an average of thirty inches per week in each paper. Or a better method would be to contract for so many inches of space to be used during the year just as you desire. Once in a while enlarge your "ad" to double size so as to attract more attention. This is a good method.

THE BEST OF ALL IS TO ATTEND TO BUSINESS.

Be prompt in filling orders. Be punctual in keeping engagements. Answer inquiries promptly, pleasantly and fully. Be faithful and accurate in the performance of all duties—to your customers, to your business, to your family, if you have one. Be strictly honest, polite, accommodating, displaying energy and regularity of habits. Practice the Golden Rule. These principles, with persevering industry, will win. The promises of Providence are to those who dig for their bread, and not to those who dream about big loaves. If you persistently dig in business, you can rest assured that you have found one of the best "ads" in your business. Success in business is not realized simply through what is called "luck," but industry and luck go hand in hand—they are twin brothers and all-conquering giants.

DOES IT PAY?

BY JOHN F. BAKER, DAYTON, OHIO.

In reading the reports of the annual sessions of the various State hardware associations I have been somewhat impressed with the number of papers on advertising. The reading of them has not been without profit, and while I am not now, nor ever have been, an enthusiast on the subject of advertising, I have been greatly interested, and have adopted some of the suggestions. I note, however, that the writers do not agree on any particular line of advertising. The opinions are as many as the writers, some using the newspapers, others the mail, while others, who have no use for the press or Uncle Sam, have ideas which they claim are far superior to any they have ever heard. In very few, however, have I yet to learn that

A PLEASED AND SATISFIED CUSTOMER

is the best advertising medium. It goes without saying that the essayists, knowing this to be true, accept it as a fact, and do not attach the importance to it that the writer of this paper does.

In all the years that I have been engaged in business I have held the idea that a customer who was pleased and satisfied was not only a good advertiser, but also a walking advertisement; hence, all my energies have been furthered in this direction. Imbued with this idea, I have made it a study, made it a part and parcel of my business, and carried it to this extent, that we have an unwritten law in our place that whoever shall enter the house must, if possible, go out of it with a smile on his face. I require and expect

THREE THINGS OF A SALESMAN

when he enters my employ; he must be honest, quick and polite. If you can think of any other requirements, they are all comprehended in these three. As a rule, I think the average merchant is satisfied if the applicant possesses only the first essential, while some might require the two first mentioned, but I have always considered the last named requisite fully as important as the first two; and yet, if a good salesman were honest and polite, I should at once give him a trial, although these be days of activity and the times demand haste.

There are too many stores now in which the average salesman seems either to have lost what civility he has ever had, or else, having never possessed any,

IS NOTHING BUT A MACHINE, OR AUTOMATON, fitted only to answer in monosyllables. It has always been a mystery to me why some of our business men will permit these disagreeable people in their employ, but since I make it a rule never to trade with them I shall not trouble myself to look for the answer. One of the amazing things I occasionally come across is the imperious air that some young men acquire when elevated to a position of trust; how they delight to impress the ordinary citizen with the gravity or importance of the position they occupy. Now, there are some old fashioned people who look on this as impudence and insolence; however, let us be more charitable and call it ignorance. But, taking a look at the other side, what a pleasure and delight to find some one in authority or in a high position who has a pleasing face, gentle manner and kindly speech. What if your taxes are higher than last year! What if the article you are looking for can't be found; and suppose the prices have advanced on the article you are buying! The manner in which it was told you has made you forget the disappointment that came with the information.

Sometimes we find this disposition to incivility in the offices of our larger manufacturing establishments. Not long since I had occasion to visit one of these factories in quest of a piece of material. As I entered the office a young man of probably eighteen years of age, very nicely dressed, with his hair plastered down over his face with bear's grease, neatsfoot oil or some other lubricant, came forward, and in a sharp voice said, "Well, what is it—what is it?" I simply glanced at him and, stepping aside, seated myself in a chair. In a few moments a gentleman came forward, and with a smile on his face and outstretched hand bade me welcome, and inquired what he could do for me. I made known my wants, and in a few moments the transaction was concluded. As I was about to leave he placed his hand on my arm and said, in a tone of voice that was heard over the office, "The young man who spoke to you when you came in has an idea that he owns our establishment, but I can positively assure you that he does not."

I have repeatedly gone out of my way to purchase my wants or necessities from those who seem to appreciate it. I do not want any salesman to fawn or palaver over any purchases I may make of him, but I think he should manifest some interest in the transaction, and do it in a civil manner; for this reason I have, as I said before, gone out of my way to trade with people who are courteous, and will pay a trifle more for the article I buy rather than purchase at a lesser price and have a surly salesman attend to my wants.

I DO NOT KNOW OF ANYTHING THAT PAYS LIKE POLITENESS.

It costs nothing, but it pays marvellous dividends. Therefore, it behooves us to be just to all alike, since it is surely the part of wisdom to treat with unfailing civility all who enter our places of business, in whatever relation they come to us.

But, says some one, does this refer to the growling, grumbling, kicking customer? By all means it does. We have the kicker; we know him. The customer who is everlastingly making complaints about the goods he bought of you, or if it is not the goods, it's the price, and who makes you feel all the while as if it would do you good to assist him out of the store. However, it is best to go slow, for I imagine that kicker really needs our sympathy. Think of the gloom that customer continually lives in, and the sunshine he is daily missing, and then simply swallow your disgust and impatience, sell him the goods, and take his money. Somebody is going to sell him, and it is likely to be your competitor. Strange as it may appear,

KICKERS ARE INVARIABLY PROMPT PAYING PEOPLE, hence you must overlook his dismal complaints, and, what is better, exchange your goods for his cash.

And then we come to the people who have tickets for balls, society dances, church fairs, church socials, and then that other much-to-be-feared party who has some church newspaper advertising space to sell, and who, as one merchant said to me, makes life a burden to the storekeeper. Well, I am going to confess that the most disagreeable task

I have to perform is to look after these people, who will not take no for an answer, who tell me that they always buy their hardware from us, notwithstanding the fact that I have no knowledge of it; who also state that Mr. So-and-So, my competitor, was glad to take a half page; or else they give you the comforting information that unless you take a page or half page they will in the future patronize the merchant who does. After an interview like this one is apt to be uncivil, but it's a mistake; it pays to be very amiable and good natured. However, we must not be too severe on those who call upon us for assistance in this direction, inasmuch as they have frequently had this burden imposed upon them by some self-appointed committee, and usually the persons who solicit are those who have taken the task reluctantly, and to whom it is a very disagreeable duty. To refuse them in a pleasant manner will usually accomplish our end, but let it be done pleasantly, so that the party may not be offended. In this connection I would say that I know a merchant who has said he found it paid to subscribe to all these affairs. On this point, however, you may differ with him.

THEN WE HAVE THE FRIEND WHO WANTS YOU TO GO ON HIS NOTE OR BOND.

In the event you are not so disposed, refuse to do it as kindly as possible, for just at this particular moment your friend is easily disturbed. And what about the friend who wants to borrow a few dollars? Well, I think I shall have to pass that by. My friends seem always to have plenty of money. What about the boy who comes into your store? Now, have a care; treat him well; one of these days he will be a man, and possibly a good customer. Some of the best customers I have were boys when I was a young man. I know a manufacturer in Cincinnati, who is a large buyer, who told me that he purchased all of his goods at a certain establishment for the reason that when a boy he had asked the proprietor for empty pasteboard boxes, and they had always been given to him with a smile. And what will you do with the

LIFE INSURANCE MAN,

this slick personage, with the glib tongue and smooth voice, a man we all seem to be afraid of? Well, if you are in need of life insurance, he is the man you want to see. Life insurance is a good thing, and if you are not insured, you should be, and that very quickly. But if you have all you want, and all you can carry, advise him so, pleasantly but firmly. Let it be done with firmness, so that he can see you mean what you say, but do it pleasantly, and he will soon cease to disturb you. But, says one of my hearers, that is much easier said than done, for some of these agents never will take no, never will stop talking, hang right on and don't let go. This is too true; I have been up against that sort myself; but, as you see, I am still alive.

AN EFFECTIVE CARD.

I must, however, relate to you an incident that occurred in my store some time ago. A prominent minister of one of the churches in Dayton gives to each of his members on the first day of January a neat white card, in size about 4 by 6 inches, on which is printed a Scripture text. These cards he asks us to put in a place where we can see them every day of the year. I have mine on my desk, as some of you know who have been in my store. One day about two years ago, while in my office and very busy, a gentleman suddenly appeared, and, dropping a card, informed me that he had a new feature in life insurance, which he desired to show me. I replied at once that I was too busy to talk life insurance; that I had all I desired, and all I could wish to buy. To this he replied that he would come in on the morrow, and with this word he left me. The next day while looking over a hardware journal who should again appear but the insurance man, and at once began by saying, "I see you are not busy, so I will show you my new plan." To my statement that I did not wish any additional insurance he replied that he had made up his mind to show me the plan, and that I must look at it. In a twinkling he produced from somewhere a package of circulars and printed matter, and then began to talk. I tried to get in a word; it was useless; I tried to get away from the desk, but he blocked the way. He simply had the floor. And that tongue—it certainly was hinged in the center—it never ceased; on it went, never stopping; a volu-

bility I had never heard equaled. Then I thought of my Scripture card, and, reaching for it, placed it directly in front of his vision. He looked at it, stopped talking, read the words; then, gathering up his papers, he started for the door, and was gone. I have never seen him since. The words on the card were these: "Study to be Quiet."

THEN THERE IS OUR FRIEND THE COMMERCIAL TRAVELER.

One of the greatest mistakes any merchant can make is to be lax in courteous treatment to these people. I have been quite frequently surprised to hear that such and such a hardware dealer was not popular with the travelers because they, the hardware dealers, were very uncivil. And, as I have thought of it, I have wondered if both were not to blame. I have made it a rule for years as soon as a commercial traveler enters my store to inform him whether or no I was in need of anything in his line. If I had an order for him I attended to it at once, or as soon as it was possible. If I needed no goods, he was informed in such a manner that he would know I really meant it; but I have usually seasoned it with some pleasantry. There are, however, a great number who, I am sorry to say, seem to think that a merchant does not know his own mind, and insist on either showing him their wares or persistently



J. F. BAKER.

following the merchant around the store, or buzzing him at his desk, forgetful of the fact that the proprietor or buyer has other work of importance to attend to. I have never had and never will have the sign, "This Is My Busy Day," tacked up against my desk, but I wonder if the traveling men are not responsible for the most of these signs? However, while we are trying to place the blame, let us not put it all on the traveler. Some merchants there are who have a bad habit of putting the man off from one day to another, and then at last declaring that they do not wish any goods at this particular time. Let me commend my plan to you. To inform him at once if you intend to buy or no, and then the complaint we have against the traveler, that he takes too much of our time, will soon be remedied. There are a few I now think of who are quick, active and thoroughly businesslike, and as soon as your business with them is concluded they are through with you and gone. I would we had more of them. Like the policeman on the corner, however, they have troubles of their own; therefore, let us not be too exacting; but, since we have a smile and a pleasant greeting for those to whom we sell goods, why not to those from whom we buy?

In conclusion, may I say, if, after hearing the foregoing, you decide the writer to be a pattern of politeness and civility, and that his store, with his clerks, must be an idealistic one, then I say to you that your diagnosis is at fault, your conclusions are wrong. But this we do say; we endeavor by courteous treatment to so influence all who come into our place of business that when again they are in need of such goods as we carry, intuitively their thoughts revert to our store.

THE NATIONAL ASSOCIATION.

BY W. P. BOGARDUS, MT. VERNON, OHIO.

In addressing you at this time, as the representative of the National Retail Hardware Dealers' Association, I am sure that I bring to you their hearty greeting—hearty, because you are one of the State associations on which the National can rely, and from which a helping hand is ever ready to be extended. Older than any other State association, stronger in many ways, we look to Ohio as a shining example of successful organization. In the years that you have been connected with the National Association there have been many changes. When you joined there were but ten States in the National; now there are eighteen State associations affiliated. There is every reason to believe that this work will go on until other States will see the value of organization and will organize and join with you in building up a central organization that will be for the betterment of the Hardware trade of the country. But some doubter may say:

WHAT HAS THE NATIONAL ASSOCIATION DONE FOR US?

If your State association has been of any value, and I challenge any one here to say it has not, so much the more has that value been increased by the further affiliation of State associations into a National one. Sometimes we are unable to see at first how much good an advertisement has done us that we have gone to great expense to get out. But the result comes after a while. We may sow seed, and with every proper hope that it will result in a crop for our benefit when storm and sun and heat shall have developed it, but we cannot tell at first, and it is worse than useless to continually dig around the seed to see if it is growing, but time tells the story. The experience of all the centuries, and the definite promise that "seed time and harvest shall never fail," are the basis for our hope that the

SEED WE HAVE SOWN WILL YIELD THE LOOKED FOR CROP
WHEN THE TIME IS RIPE FOR IT.

Applying this illustration to our association work, we find that the basic principle still holds good, that those who sow shall reap.

The National Association has been organized about five years. Its work has largely been a work of organization; getting States into line, and encouraging them to organize State associations, that they may join the National, and so form a barrier against some of the evils that threaten the Hardware trade.

THERE IS A FORCE AND POWER IN THE UNION OF EIGHTEEN STATES

when directed toward the accomplishment of any object that means a good deal to the Hardware men of the country. And if the power is wielded wisely it will mean much more in the future. As in the State, so in the National there have been men in as members of the executive committees and as secretaries who have so managed and so controlled the work of the association that the results brought about have been for the peace and betterment of the trade in general. Peace because as we grow in size and numbers we grow strong in influence, and while we use our influence judiciously we will retain the confidence and respect of those with whom we have to deal. It is a step a long ways ahead of anything we have previously had when a committee from the National Retail Hardware Association is invited to meet in conference a similar committee from the National (jobbers') Hardware Association, and when manufacturers will tell us, "We are very glad of the opportunity to meet you, for we have gained some new ideas and new points of view by this conference." And we are justified in saying that that conference opened the way to still further conferences, and to the opportunity to attend the Atlantic City convention, where the cause of the retail dealer was pleaded as against the mail order and catalogue houses who are seeking to foist on the country a system of governmental transportation for their use and benefit, to the detriment of the retail dealers of the country. Another evil that we are seeking to rectify is the

LOOSE METHODS EMPLOYED BY SOME MANUFACTURERS TO MARKET THEIR GOODS;

to sell to whoever will buy, without regard to the effect on trade or the future conditions of the market; to sell their product at such prices and in such a way as to thoroughly disorganize the markets, as far as they are able

to do it. To change these methods and encourage the sale of goods through legitimate channels; to correct the abuses that will creep in, and to adjust differences that arise between buyer and seller is a work well within the duties of the National Retail Hardware Dealers' Association.

How well the work is being done will be evidenced when you know that certain manufacturers have come to the place where they will not sell to a cutter of prices, but confine their sales to legitimate dealers who do not make a business of making leaders of standard goods and selling them at cost in order to work off a lot of inferior stuff on a confiding public. And the satisfactory thing about it all is that those who have tried the plan long enough to get a demonstration say that they are satisfied to continue along on those lines. The feeling among Hardware men that they were

PAYING TOO MUCH FOR THEIR INSURANCE

has been justified by the success of the companies that have been organized in the several States. Our own State association insurance company makes a very flattering report vindicating us in the adoption of the insurance feature in connection with our association work. The State associations having decided, and I think very wisely, that it is expedient to take only a part of each risk, are therefore not able to cover all the insurance desired by the members. That has left an opening for another insurance company. The National Association have deemed it wise to undertake to cover the shortage to a certain extent by organizing a National Hardware Dealers' Mutual Fire Insurance Company. With our risks spread, as they must be when confined to Hardware stores, it would be impossible to have a large demand on our resources, except in some such dreadful calamity like the late Baltimore fire.

MUTUAL INSURANCE HAS PROVEN TO BE THE MOST ECONOMICAL INSURANCE THERE IS.

Under the plan we have adopted it cannot but be even more economical than ordinary mutual insurance.

The advantage of having a National Insurance Company will be that we can get more of the low rate insurance. We will be in closer touch with the National work. The more we are in sympathy with the National work the more influence we can wield; and the greater the amount of insurance the National can get, the less the cost of insurance. The fixed charges on one million of insurance would be but little over the charges on a half million of insurance. For the building up of the National Insurance Company I bespeak your careful consideration.

But time will not permit me to go further into the work of the National Association. I trust that I have made it plain that the organization of State associations, and their affiliation with the National Association, is a move in the right direction, and that the results that come from these efforts will culminate in better conditions for the retail Hardware dealer.

THE PARCELS POST.

Y. A. HUTSINPILLAR, IRONTON, OHIO.

The Postal Progress League is, comparatively speaking, of recent organization, having been incorporated in the city of Boston in April, 1902. In the beginning it was largely composed of publishers of books and periodicals, but they have recruited their ranks from the business and professional men, Colonel Pope, of bicycle fame, being the first president, but who has been succeeded by Edwin Mead, publisher. This change, I take it, augurs not well for the growth of the organization, as it indicates the movement cannot hold the support or command the sympathy of the business world, and without this the movement cannot become formidable; I use the term business in its strictest sense, and designate a publisher as a connecting link between the professional and business man.

This league hopes to effect a re-classification of mail matter, on a basis (they say) of cost of the service rendered, reduction in postal rates, free delivery all over our country, postal insurance and an enlargement of the parcels post. With merely a passing reference to the others, with the last, the enlargement of the parcels post, we must take active and strenuous issue.

While Colonel Pope was president he prepared a bill which, under the auspices of the league, has been introduced in the present Congress, looking directly to the en-

largement of the parcels post and the insurance of mail matter, and known generally as the Parcels Post Bill. It contemplates the consolidation of the third and fourth class matter under the general term merchandise, with a weight limit of eleven pounds and a rate of 1 cent on any article up to three ounces, and a maximum rate of three ounces for 1 cent up to one pound, which is 5 cents, and for each additional pound 2 cents, which makes a rate of 25 cents for the eleven pounds, the limit before mentioned.

No parcel, however, can be over three and one-half feet long, or occupy space greater than two cubic feet, say 42x7x6, rather a good sized box, about the size used in packing Plumbs and Levels, or a space the same as two boxes 8x10 glass; and the weight permits the mailing of two Axes, or an Axe, Saw, Hatchet, Chisels, etc., quite a nice kit of tools.

The packages, however, need not be squares or parallelograms, but, like trotting horses, may go in all shapes, and under the proposed law the mail may be the transit medium for the family washing, or you may expect to see Coal Hods, Foot Baths, Chamber Pails and similar articles go scurrying through the mails. In our school boy study of mathematics we occasionally encountered an unsolvable problem, simply because it was based on error, and in want of a solution we used the term "reduced to absurdity," and this term strikes us as mild when applied to this bill, as it is the most absurd specimen of proposed legislation ever called to our notice.

RESUME OF POSTAL CLASSIFICATION.

If we discuss a bill looking to a change in postal classification let us give a brief resume of the law as it now is. As you know, on first class matter, sealed, we pay 2 cents an ounce, or 32 cents per pound, with no limit to the amount; on second class matter, such as periodicals from publishers to dealer, and from both publisher and dealer to subscribers, the rate is but 1 cent per pound, and no limit to the amount that may be sent; on third class matter, such as almanacs, catalogues, etc., the rate is $\frac{1}{2}$ cent per ounce, or 8 cents per pound, and fourth class is merchandise—samples, etc.—and is 1 cent per ounce, or 16 cents per pound, but the weight must not exceed four pounds.

EFFECT.

The effect of such a law is beyond the calculation of man, and almost beyond his contemplation. It certainly would revolutionize the whole system of business, and would be the death knell of the retail houses generally, and in a measure the depopulating of towns and villages, the natural effect of destroying the retail business. The jobber also rises or falls with the retailer.

With present conditions, the ratio of success is largely against the retail dealer, and the effect of this law would be to transfer very much of the transportation to the mail service, which is the same for long or short haul, and therefore the business would go to the large cities, to the catalogue houses.

When you contemplate the articles in the Hardware line that can be mailed you cannot doubt the statement made—Picks, Mattocks, Sledges, Saws, Squares and hundreds of articles that are now shipped only by freight, except in emergencies, and the transportation charges on single articles increasing the cost so much to the consumer that it gives the retail merchant an advantage, enabling him to compete with the catalogue houses. All these would be mailed at trifling cost and catalogue houses would get the business.

The dry goods and clothing merchants must fare even worse, for their customers can secure samples and buy more intelligently. The grocers, likewise, must feel the blighting effect, for the housewife could then draw her raisins, etc., direct from California.

THIS LAW DAMAGES THE FARMER.

The farmer must have a market, and for very many of his products a home market, and as this law imperils the towns, in like proportion it kills the farmers' market. The farmer cannot afford to have the business interests jeopardized. He also must have an income before he can make an outlay. He must have consumption for his production, and especially with the small farmer must this consumption be near at hand.

Again, if he lends his aid to break down the retailer he invites and promotes competition, as many of our mer-

chants coming from the farm would return if compelled to change vocations.

MIDDLEMEN.

The idea that any country, or any part of a country, can eliminate the middleman is fallacious. You may attempt it, and a train of events may be set in motion that for the time being may effect it, but it will only pave the way for another set. The small farmer cannot ship his few bushels of grain, his basket of fruit or his single fat ox, and must either have his home market of consumers or sell them to his neighbor, which makes a middleman of this neighbor, who for his risk must have a margin.

We are mutually dependent. Let there be chaos in the land and the weak are the sufferers. It is the opportunity of the speculator—the man with ready cash.

CAN THE GOVERNMENT AFFORD IT?

During the first fifty years of the life of our government the postal revenues fluctuated sometimes in excess of the expenditures and sometimes below them, but for the past fifty years there is no single instance in which the revenue equals the outlay. The year 1902 the deficit was about two and one-half millions. The Secretary of the Treasury esti-



C. A. HUTSINPILLAR.

mates that for 1904 we will have but a small surplus from all sources, and in 1905 we will face a deficit.

Should this bill become a law the increase of expenditures must be appalling—again, I say, beyond the calculation and almost beyond the comprehension of man. Every mail train would be a freight train; our postoffices, and especially the remote country offices, would be transformed into freight depots.

Through a jobbing house with which I am connected I have obtained some

FREIGHT RATES

to different stations in our country. At one terminal, tapping a vast mountain region, the rate on a certain article of every-day use, common to the Hardware and grocery trade, delivered at the customer's door, is \$1.98½, and the distance only 125 miles. This covers hauling when the roads are good. From the nature of the country the roads are, in a measure, impassable during many months. Thus you see, on the average, the rate by mail would be no greater, and when you consider the many losses in transit and the insurance feature that this bill carries, you must see it is far better for this territory to draw supplies by mail as far as the law permits, as the mail will go with the government behind it. At present the mail in these mountain regions goes by horses; under the proposed law a train of wagons and mules, as in our army days, would be necessary to transport it.

The local freight rate from the California fruit regions to Ironton on dried fruits, as raisins, figs, etc., is \$2.20 per hundred, and this in kegs instead of boxes, which likely is higher. Now, with a lower rate by mail and a transit time of not one-third, think ye the government will

not be expected to furnish transportation for much of this immense product? Ironton being on the good Ohio River, has low freight rates, and the rates I have given are probably lower than to inland towns.

The catalogue houses, buying this crop in quantities, will become the distributors to the consumers, our grocers will be only provision dealers, selling flour and potatoes and such articles of low value, which by the rates will be barred from the mails.

This bill has still a deeper meaning; it is a long stride toward that most pernicious principle,

PATERNALISM.

There already exists in the minds of our young men an idea that the public dollar is more valuable than one from private channels. There is a pervading idea with young men (and a politician never feels old) that they can be of much service to their country by accepting "place," and, linked with this idea, comes its twin brother, that the government should show its appreciation by keeping them "placed."

This bill made a law must necessarily largely increase the number of salaried employees and promote the growth of the idea that the government, in a measure, should provide for our young men, and as this law would necessitate a "hurry call" for thousands to come to the government to dispose of the merchandise offered for transportation, the idea would be prevalent that the government can provide for all the unemployed, and this is paternalism, pure and simple. Down with paternalism, make only such laws as give every man a chance to care for himself—a good man needs only a chance.

THE ADVANTAGES OF SYSTEM IN A RETAIL HARDWARE STORE.

BY C. S. JOHNSON, BARBERTON, OHIO.

The only way in which I can address you upon this subject is the way that I would talk to any one who asked my opinion upon the matter. I think that system is something that we all want, and that many of us do not know how to obtain it, that is, we do not know just where to commence and where to stop. The ideas that I will try to present, therefore, are not to be taken as being all there is to it, for I realize my own shortcomings perhaps better than those who listen to me now.

I have tried, in thinking about the matter, to determine what system is possible in a small establishment, and what is necessary in a large one, and perhaps after I have finished I may have given some ideas that others can enlarge upon with profit to themselves and, I hope, to all of us.

It occurs to me that, for one thing,

SYSTEM IS ABSOLUTELY NECESSARY

to everybody in the matter of displaying the goods they have for sale, and that a lack of it is bound to result in loss of one kind or another. Therefore, I advocate that we should all give attention to that. If we sell Stoves, a prominent position on the floor and a display at the proper season is necessary for a sale. The sale of Pocket Cutlery, Silver Plated Ware and other goods of that class is made easier if they are attractively displayed in a suitable showcase. The thousand and one things that go to make up a hardware stock must each one be treated in a manner that is appropriate, and the study and consideration of this proper method is the first step toward system that a merchant naturally thinks of.

But even if the goods are properly displayed, it sometimes happens that they continue to be displayed for a long time before a sale is made. The cause for this must be ascertained; it may be because no particular effort has been made by those whose duty it is to sell them. They may have waited for some buyer to insist upon carrying away the article. They may never have called the attention of any one to an article that was new and desirable, but that must be known to be appreciated. So that I naturally suggest, as another element of systematic work on the part of the retailer, that

HE SHOULD TRAIN HIMSELF AND HIS CLERKS

to learn the good points of everything new he has to sell, and offer it repeatedly to customers coming in, whether they make inquiry for it or not.

Perhaps after all this effort has been made you are still unable to make any sales. That is an evidence that there is no demand for that particular article, and that your judgment was at fault when you purchased it. System then comes into play by

DEVISING SOME METHOD OF MARKING THAT ARTICLE

so that you will recognize the fact that it is not a desirable portion of your stock, and should not be purchased in the future. Perhaps some of those present have a plan that works to their satisfaction. I suggest, as a simple method, that you use a price-tag of a different color from that which you ordinarily use, if the article be one that is tagged, or, if not, that you devise a private character to be placed somewhere near the price if it be marked on the article itself.

This leads very naturally to the thought that

SYSTEM IN BUYING IS AN ESSENTIAL TO A SUCCESSFUL BUSINESS,

and perhaps as important as system in selling. How many of us are there who can determine what they should buy, or when they should buy it, with absolute certainty? If we wanted to make a specification for a carload of Nails, a spring supply of Steel Goods or Wire Cloth, or similar articles, could we tell with any degree of certainty how many of each size or number we can buy with safety? I venture the assertion that there are only a few of those present who could do so without a great deal of work and research, and the rest of us probably guess at the quantity, or allow some salesman to make up the order according to his judgment.

The result is that frequently in the height of the season we find ourselves out of some of the leading and staple articles, and with a surplus of others that are not wanted.

A system by which the amount of any given article purchased during the year can be ascertained is not a difficult one to install, and

WILL WELL REPAY THE TIME CONSUMED IN KEEPING IT UP in the saving of unnecessary investment and the sacrifice in selling odd goods at any price to get rid of them.

The subject of system is so large that it is not to be expected that it can be treated of fully in a paper like this. I only hope that the few ideas I have advanced may be the means of impressing its importance upon the minds of those present, so that when they return to their homes they may install such system as seems appropriate to their needs.

In conclusion, I will quote the words of a famous author, who evidently was fully impressed with the importance of his subject: "The value of a system is not in the system itself so much as in its application. We may be systematic, yet unsuccessful; but unless we are systematic we cannot be successful."

REPORT OF INSURANCE COMPANY.

BY GEO. M. GRAY, COSHOCTON, OHIO.

As secretary and treasurer of the Ohio Hardware Dealers' Mutual Fire Insurance Company, I beg leave to submit the following report, the same being the second report made by this company since its organization:

On the 9th day of October last this insurance company quietly celebrated its first anniversary; having, however, made its first report on the first day of January preceding. Notwithstanding the age of this company, the fact that two financial reports of its business has passed the conservative and careful inspection of the Honorable A. I. Vorys, Insurance Commissioner of the State of Ohio, ought to be sufficient to banish any mists that may have been clouding the minds of some of the more conservative and inquiring Hardware men of this State relative to the degree of success that may attend a mutual fire insurance company, and should, in some measure at least, increase the membership of the company, inspire greater confidence in its ultimate success and intensify the interest of all members, who have put their shoulder to the wheel with a determination that we will rear a financial and moral structure that will, in the end, prove a blessing to mankind.

While it is necessary that I refer to our report, filed with the Insurance Commissioner on the first day of Janu-

ary, the present year, yet it is my purpose, in so far as it is possible, to give a statement of the affairs of the company at the present time.

Our last report showed that we had on January 1st, this year, risks amounting to \$828,260.00, representing 483 policy-holders, or, about one-third of the merchants in the State who sell Hardware exclusively, and about one-fifth of the general merchants who handle Hardware. This report further shows that

ALL LOSSES HAVE BEEN PAID;

that no assessments were made upon members during the year; that a dividend of 20 per cent was declared and paid to the members, and that we had a surplus fund, in cash, of \$12,487.59. Since making this report we have disbursed as salary, attorney fees, expense fees to Ohio Inspection Bureau, losses and dividends \$2,756.41; leaving a net balance of cash on hand, \$9,731.18. It is now proper to explain

HOW THIS SURPLUS HAS BEEN DISTRIBUTED.

In the first place, the laws of Ohio provide that 50 per cent of the amount of premiums collected during the year



GEO. M. GRAY.

preceding the 1st of January shall be set aside as a fund to be known as a re-insurance reserve fund; that after so doing, the net profits shall be ascertained, by deducting from the remaining 50 per cent, first, losses paid; second, expenses of all kinds; third, dividends paid. The amount remaining after such deductions are made constitutes, under the law, the net profits of the company.

Rule 17 of this company, which is made in conformity to the laws before referred to, provides that 25 per cent of the net profits, ascertained as I have stated, shall be set aside each year, and shall be known as a reserve fund for the security of policy-holders; and this 25 per cent of the net profits shall be set aside from year to year until the total amount so set aside shall equal 2 per cent of the whole amount of insurance in force, after which any additional net profits shall be distributed as a dividend among policy-holders as their respective policies expire; but this reserve fund cannot be used for the payment of losses, nor for any other purpose, until the whole of the available cash assets have been exhausted.

Now, as to our surplus, \$12,487.59. It is but a mere mathematical calculation as to how it has been distributed. In the first place, 50 per cent of the net cash assets, that is, \$5,277.55, has been set aside as a re-insurance reserve fund; then, since making our report, January 1st, there has been paid out in cash \$1,035.70 as expenses; for losses occurring during the year, which were in course of adjustment at the time the report was made, and have since been adjusted and paid, \$611.76; 20 per cent dividend to policy-

holders for the year, \$1,108.95; making a total paid out, \$2,756.41.

This amount deducted from \$12,487.59 leaves us a balance of \$9,731.18, which, under the law, constitutes the net profits of the company for the year; we then find that 25 per cent of this amount, \$5,277.55, the net profits, is \$1,319.39, being the amount to be set aside as a reserve fund under Rule 17.

Then we have a remainder left of net profits beyond our re-insurance reserve of \$8,129.19; all of which amounts are in the treasury and can be produced upon an hour's notice.

From the foregoing it can readily be seen that during the past year—in fact, at no time since the organization of the company has it been necessary to make an assessment upon members for the payment of losses, but, on the contrary, all losses and expenses have been paid, and we have in our treasury the total sum of \$9,731.18, which has been collected; and at the same time we have furnished ample protection to every policy-holder; and, I might observe in passing, that we have done so at a rate, in many instances, below, but in no case beyond, that of old line companies.

And at this point, although it may not be proper as a part of this report, I wish to observe that, as your secretary, after having devoted a great deal of time and my best energies in endeavoring to promote the interests of this company, and having had its affairs constantly before me, observing as well at every opportunity the workings and policy of old line companies, I deem it proper, in fact, I feel like urging upon this body that the

QUESTION OF RATES

should be taken up at this meeting and carefully and dispassionately discussed, and that the officers and agents of the company be given some directions as to what our future system of rates should be. I do this because of the fact that old line companies for some time past have been raising their rates, and they are at it to-day; they are doing so purely from a business standpoint; and what is good for an old line company that has weathered many storms, but has ridden the waves of adversity to a successful issue, certainly ought to be good for our infant enterprise, that must necessarily, in the course of events, meet with the same obstacles and have similar battles to fight as has been the experience of all other successful companies.

It may further be observed that no institution can do business on the wind, but in order to be successful must have a solid foundation, and that foundation must be kept intact or the superstructure will fall. If this company, or any other insurance company, neglects the question of rates, or attempts to furnish to its policy-holders insurance at a mere nominal rate, it will be but a question of time when it will be necessary for the judge of some court to appoint a receiver to take charge of its affairs and wind up its business.

Up until the present time we have been endeavoring to charge a rate corresponding with, but not exceeding, that charged by old line companies, believing that it was only good business judgment to do so. However, it must not be forgotten that, considering our age, we have a fair re-insurance reserve fund; we have the requisite amount as a fund for the protection of policy-holders, besides our net profits, and we have paid all our expenses, our losses and 20 per cent dividend to policy-holders, this being practically the result of twelve months' work.

POLICY-HOLDERS KNOW THEIR TOTAL LIABILITY.

There is another matter that certainly ought to be taken into consideration. It is this: Our policy-holders know each day and each hour of the day and each minute of the hour, just what their total liability is. If a man holds a policy in our company and has paid a premium of \$10, he knows that if the worst should come, he cannot be called upon nor compelled to pay to exceed \$30 additional, or three times the amount of his original premium; and this cannot be required of him until, as we have said before, all available cash assets have been exhausted; and the available cash assets are such as we have referred to.

Before our company was organized it was the plan of organization and of operation after the organization was perfected, that complications be avoided; and it was sought

to obviate everything that might be injected in the articles of incorporation or the constitution and by-laws, or the policies issued by the company, that could not be readily comprehended and easily understood by even the ordinary business man. Yet, with all our caution and care, we have since found that both the application blanks and our policies can be improved upon, and that matter is now under consideration, the secretary having been directed to prepare

A NEW APPLICATION AND A NEW FORM OF POLICY.

and in so doing to adopt in so far as it is possible The New York Standard Policy. And when this work is complete, I feel safe in saying, in fact, I say it without a fear of successful contradiction, that we will have a business, the machinery of which will carry with it no complications, but will be plain, simple, easily understood and free from anything that would have a tendency to mislead; and if properly managed and kept in good shape, and not overloaded with large and hazardous risks, and is not run at lightning speed through an anxiety "to get there quick," it cannot help but be both profitable and beneficial to the hardware men of the State.

We do not ask our policy-holders for premium notes, nor is our company organized under a law which places no limit upon the liability of its incorporators; nor does this company go to the hardware men of the State offering them something for nothing. It is simply doing business upon business principles, endeavoring to do it as cheaply as possible on a mutual plan, and with that conservatism and caution that should characterize every successful business institution.

TIME WHEN MUTUAL INSURANCE COMPANIES

were looked upon in disgust; and it is an unfortunate fact that many mutual insurance companies have sprung up like mushrooms, and were gone in a flash, leaving distress and chaos in their wake; but in each instance, when such has been the case, it was found that the whole trouble arose from a failure to strictly observe ordinary and common sense business rules; but, notwithstanding all the failures of the past, it is a fact that a mutual insurance company is in as good if not a better position to protect its policy-holders as any joint stock company, and can do so at a less rate.

Mutual fire insurance companies are organized for the purpose of furnishing insurance to members at actual cost; and many mutual insurance companies which have been in existence for a long time are found to be just as sound and reliable as any joint stock company, and furnishes insurance to its policy-holders at less cost.

Joint stock companies are organized for the purpose of carrying on business for profit, and if there should be no profits accrue from the business the stockholders in these companies would not put up their money by taking stock; and if, after having taken the stock, the business should fail to pay a dividend, or if it was found to be an unprofitable investment, the strong probabilities are that its business would, in the course of time, be wound up and the company dissolved.

Many persons cry down mutual insurance companies, whether life or fire, claiming that the future of such an organization depends upon the honor and ability of its stockholders. Generally speaking, this is true. Any business, and I care not what it is, depends upon the honor and ability of those who are interested in it. It has been said that an "insured person who makes a profit out of his insurance, or who fails to suffer loss by it, is in the same position as the man who takes more money out of the bank than he put in."

INSURANCE IS AN INDEMNITY

and its principles should not be founded upon purely selfish motives. The reasonable man, the common sense man, will much prefer to pay \$50 a year for indemnity than to have his property destroyed by fire; although he may feel certain that in case of loss he would receive from the insurance companies full compensation. So that, when a man buys insurance and pays his premium he does so for two purposes. First. That he may have indemnity should he meet with disaster. Second. That, although he may not suffer any loss during the period of his policy, yet he is willing to contribute to the extent of the amount of his premium for the maintenance and support of an in-

stitution which can be a benefactor to his neighbor should he suffer loss, and may prove to be a benefactor to himself under like circumstances.

IT IS A FALSE THEORY

that insurance is always a loss and no gain, unless your property is burned. As an evidence of this fact it can safely be asserted that in many instances a merchant's fire insurance policy in a good and substantial insurance company gives to him a credit at the bank, or with those with whom he deals, that he otherwise could not obtain. Merchants sell their goods on extended credit, knowing that although misfortune by fire may overtake the purchaser, yet his insurance indemnity will enable him to pay for them.

A transaction of any magnitude recognizes insurance as an essential factor. It is closely and inseparably interwoven with every business scheme and enterprise, and is a strong, continuous thread, lending security to the whole fabric of business; without which it is doubtful if capital, which, upon the slightest and even an unwarranted provocation, so often hides itself in fear, would attempt to meet the necessities of the business world.

As proof that mutual fire insurance companies have been successful, are successful to-day, and with proper management can be made successful in the future, we have only to refer to the fact that the

OLDEST FIRE INSURANCE COMPANY IN THE WORLD IS A MUTUAL COMPANY,

namely, The Hand in Hand Mutual Insurance Company, of London, England. The oldest fire insurance company in the United States is a mutual company—The Philadelphia Contributionship—which was organized by Benjamin Franklin, and was chartered twenty-four years previous to the signing of the Declaration of Independence.

The oldest company in the State of Ohio is a mutual company—The Cincinnati Equitable, incorporated 1826. The largest insurance company in the State of Ohio is a mutual company—it does business on the stock plan, however—The Ohio Farmers', of LeRoy, Ohio. Many others could be mentioned, but I only refer to one more, The Central Manufacturing Mutual Insurance Company, of Van Wert, Ohio, organized April 7th, 1876. This company was organized under the same law as our own, and in its early history met with the rebuffs and opposition of the pessimist; but under the careful management of its officers, among whom none have contributed more to its success than its present secretary, F. W. Purmort, an all-round insurance man, this company now has as total assets \$968,844.20, having paid losses since its organization aggregating \$839,273.62; besides, it has as assets, in cash and securities which are available, \$146,712.35, and has paid since its organization an average dividend annually of 20 per cent to its policy-holders; some years, however, having paid a greater dividend than this.

True, the assets of this company do not figure in the millions, yet it shows that it has indemnified its policy-holders during all these years, it has paid its losses and has a reserve sufficient to withstand a succession of losses with much less danger to its policy-holders, comparatively speaking, than can many of the old line companies. From an able address delivered by Edward Atkinson, the great statistician and president of the Boston Manufacturing Mutual Fire Insurance Company, of Boston, Mass., which returns to its policy-holders annually an amount ranging from 75 to 90 per cent of their premiums, I desire to quote the following, which fully enunciates the doctrine of mutual insurance as compared with insurance taken by a joint stock company. It is brief:

Many of you are probably prejudiced against what is commonly known as mutual insurance, but if you insure your property at all you are engaged in a system of mutual insurance, whether you know it or not—all insurance is mutual. Your own premiums which you pay to an insurance company, whether it be known as a stock company or a mutual company, constitute the only fund from which your own losses are to be paid, if the insurance company in which you are insured is expected to have any stability. The moment you touch the capital of a stock company for the payment of losses, at that moment the company becomes unsafe to contract with, and may become bankrupt unless the capital is made up by contributions

of new capital and higher or new premiums on new risks. It therefore follows that the capital of a stock company serves only as a sort of guaranty that the policies issued by it will be paid in case of loss; just as the liability to assessment severs, as such, a guaranty in the mutual company.

These statements come from one having had wide experience and splendid opportunities for observation.

The great life insurance companies of this country are nearly all mutual companies. Take The Mutual Life, of New York; The New York Life, The Equitable, The Connecticut Mutual, The Mutual Benefit, The Northwestern Mutual and many others might be named, each one of which has millions of dollars of assets. In fact, it is said that three of the large mutual life insurance companies of New York City alone could pay off our national debt, and still have money left.

IF THE MUTUAL FEATURE IN LIFE INSURANCE IS A SUCCESS, WHY SHOULD IT NOT BE IN FIRE INSURANCE?

We assert that in fire insurance it is a success, and it is now an admitted fact that in some States of this Union mutual fire insurance companies do a much greater business than joint stock companies.

The last report of the Insurance Commissioner of our own State shows that mutual fire insurance companies do from one-eighth to one-ninth of the entire fire insurance business of to-day, without taking into consideration business done by mutual fire associations, which insure farm property nearly altogether. But I think it a fact worthy of note that fire insurance companies that have proved the most successful in their operation are those which have classified their business, or, stating it differently, have confined it to a particular class of property. Now, some one may ask

WHY CAN A MUTUAL COMPANY FURNISH INSURANCE CHEAPER THAN A STOCK COMPANY?

And I will attempt to answer this briefly. In the first place, the question of expenses enters into every business—how much does it cost to run it? With mutual companies you will find no high salaried officers, who put in their appearance at the office at 10 o'clock in the forenoon, leave at 2:30 or 3 o'clock, and enjoy themselves between times, but earn nothing for the business.

The mutual insurance companies which confine themselves to a certain particular class of business are generally managed by men who have had experience in that business and are acquainted with all the ins and outs connected with it; and this knowledge and experience afford them the means by which they know the dead beats or the black sheep, as they might be called, and are able to avoid them; with such a condition of affairs, a mutual insurance company has as its policy-holders a class of men possessed with a moral sense of right, and, this being true, the risk is largely decreased, because there is less moral hazard; and it is a well recognized rule among insurance men, and has been for scores of years past, that moral hazard in the insurance business is one that must be considered above the financial risk taken. While there may not be much comparison, yet this principle might be illustrated by the man who applies to a bank for the loan of a sum of money. He may be amply responsible for the repayment of the money, yet slow to pay and difficult to collect from, and for that reason the bank refuses the loan. While another man who is prompt, honorable and with known habits of industry and morality, but not nearly as responsible from a property standpoint for the amount he desires, will readily be accommodated; the distinctive feature considered by the bank being moral worth; and the same principle applies to insurance.

Statistics are dry food for thought, and many times very misleading; and I shall not inflict myself upon you by indulging in them, but will simply say that while touring this State in the interest of our company I have found that in each important city and town throughout the State the most conservative and solid and wideawake, energetic hardware dealers, both jobbers and retailers, are investing in all the mutual insurance they can obtain in preference to the stock companies, for the reason, as a number of them have informed me, that their rate of insurance year in and year out averages them from 15 to 20 per cent less

than that of joint stock companies; and in case of a loss, either entire or partial, the mutual companies respond as promptly in adjusting and paying the loss as do the joint stock companies.

WHY LARGER RISKS ARE NOT ACCEPTED.

But before closing I desire to speak of one other matter. During the past year we have been solicited by a number of persons to accept risks ranging anywhere from \$1,000 to \$5,000, and must say that in a few instances we have been scolded and complained of because we would not accept a risk above \$5,000. It may be well to give our reason for taking this position. When the company was first organized the size of the risk was a matter to which special attention was not given; we were, of course, anxious to start off with as good a line of risks as was possible, and as the maximum limit fixed by law on our risks was \$5,000, we felt justifiable in accepting risks to that amount; but riper judgment, coming from our observations of what other companies were doing, put us to thinking, and when we came to look over the matter we found that the most hazardous thing we could do for the members of the company would be to assume heavy risks, because in case of two or three total losses under such risks we might absorb all our past earnings, and, perhaps, impose an assessment upon the members, which would simply mean the death of our enterprise.

If you will take the time to investigate you will find that all fire insurance companies, whether mutual or joint stock, are to-day reducing their risks to the lowest possible minimum, and not one of them can be induced to accept any risk exceeding \$2,000. I mean to say this is the rule. It being true, of course, that there are some exceptions, but when the exception obtains you will find first class reasons for it. Either a fireproof building, the risk isolated, or little or no combustible material kept, etc. Now, if our company, in its endeavor to offer protection to its members, should load itself with a number of risks, say, from \$2,000 to \$5,000, and should then meet with a total loss of, say, three, four or five such risks, any one can readily understand the effect it would have upon us.

Shortly after our organization that was just the condition we were in, when we awoke to our danger and succeeded in obtaining some re-insurance on all our large risks by The Central Company, of Van Wert, Ohio; since which time we have been extremely cautious as to the size of the risk we have assumed, in no instance accepting any to exceed \$3,000, and much prefer them to range from \$500 to \$1,500; and as an evidence of the soundness of such a policy we have but to refer the members of this company to the losses we have paid since our organization, although they are not great either in number or in the several or aggregate amounts. Following is a list:

J. H. Kauke, Van Wert, Ohio.....	\$4.20
O. M. Scott & Bro., Marysville, Ohio.....	43.27
Roney & Schearer, Dayton, Ohio.....	187.68
N. C. Alton, Lorain, Ohio.....	11.20
Hatfield & Scott, Troy, Ohio.....	47.46
Columbus Hardware Company, Columbus, Ohio.	79.22
Kruse Hardware Company, Cincinnati, Ohio...	10.80
F. A. Walthers, Bucyrus, Ohio.....	9.00
Kauke & Alspach, Van Wert, Ohio.....	16.88
C. H. Blatner, Vermillion, Ohio.....	673.10
Total	\$1,087.81

Now, while in many of these instances the loss was much greater than the amount of insurance paid by us, yet the owners of the properties, as I am informed, were reasonably compensated for their loss, because of having other insurance, there being a number of other companies holding policies on the property destroyed; and when each had contributed its proportionate share of the loss it reduced the amount necessary to be paid by each company. While, on the other hand, if any one company had been carrying the entire risk it would have been compelled to pay the entire loss; and the amount a single company received by way of premium on a large risk is not sufficient to justify the taking of it.

I remember a case that came under my observation at the time of the organization of our company. I was soliciting insurance, and called upon a prominent hardware dealer in one of the leading cities of this State. I submitted our proposition to him, whereupon he very politely informed me that I was welcome to the privileges of his

office, and might make the same my headquarters while remaining in the city, if I desired so to do, and that he would extend all courtesies possible, but demanded that I should not talk insurance to him. I confess I felt very much disappointed at the time, and would have willingly assumed a risk of \$5,000 on his stock, and would have deemed it a first class risk; but he was so positive in his statements that I saw it was useless to insist or attempt to discuss the matter with him, and left, feeling, however, that the treatment was rather severe. Our company was organized shortly afterward, and started off in a good, healthy condition, when, within a few months, we received a report that this man's stock of hardware and building had been entirely destroyed, and that the amount of insurance he had was considerably insufficient to pay his loss.

This is one of the occurrences in our brief history that put us to thinking and observing and planning for a system that would better protect our company and its members from hazardous risks that would ultimately bring disaster and dissolution.

So it will be seen that failure is a result which may be easily brought about, while success depends upon persistent effort, careful watching and a strict observance of all time-tried and fire-tested business rules.

In closing, allow me to suggest that, personally, I have for years favored mutual insurance for hardware men, and although the organization of a company like ours is quite an undertaking, and necessitates a great deal of labor, especially in our State, yet I in no wise regret anything I have done nor any sacrifice I have made. I believe it to be a noble work, and take pride in stating here and now that

OUR COMPANY, UNDER ALL REASONABLE AND ORDINARY CONDITIONS, IS GOOD FOR ITS EVERY OBLIGATION.

And I desire to thank you, as well as those who are not present with us, who have contributed so nobly in various ways to the success we have attained, and I assure you that I appreciate the hearty co-operation and kindly assistance you have rendered to the officers of this company since its organization.

I have endeavored in this report to present to you a fair, impartial and unbiased statement, both as to the present and the prospective future of our company, and in so doing I have studiously avoided anything like exaggeration or the over-drawing of the picture. It is your right and privilege—in fact, it is your duty—to know all about the company's affairs, and although our brief career has had its bright and dark sides, and this will continue to be true in the future, yet I believe that the members of this company will continue to promote its interest by lending their encouragement in every way possible.

At first our organization was looked upon in the light of a joke, those identified with old line companies holding us out to the world as an institution that would never be able to weather the storms, and it is a fact to be lamented that in our own great State we have a few hardware men who might be termed "kickers." Men who, I must say, have never signified a willingness to give our company the slightest encouragement, and who show a disposition to minify our work, but are always ready to boost the old line companies. But, with all these things, it must be admitted that

WE ARE COMPELLING THE OLD LINE COMPANIES, IN MANY INSTANCES, TO REDUCE THEIR RATES ON HARDWARE STOCKS.

I do not say this in a boastful spirit, because the agents of joint stock companies have always extended us the utmost courtesy, and we have no reason to complain of their treatment, but with our ranks filled from the great host of hardware dealers throughout the State, whose business sagacity is such as to enable them to know a good thing when they see it, I feel certain that, in time, the Ohio Hardware Dealers' Mutual Fire Insurance Company will take its place and become a prominent factor in the great business world, and will be classed among the strong and reliable companies of the country. In this you may call me an optimist, but far rather would I be an optimist than a pessimist.

Then give us your encouragement. Stand by your company, and the company will prove a blessing to you and your posterity.

Colorado Retail Hardware Dealers' Association.

CONCLUDING REPORT.

Committees.

The following committees were appointed by President Branson:

GRIEVANCE: L. B. Hunt, Victor; Geo. Wilson, Florence; A. H. Griswold, Fort Collins; A. L. Branson, Trinidad, and F. C. Moys, Boulder, *ex-officio*.

SERGEANT-AT-ARMS: George Sullivan, Salida.

REVISION OF CONSTITUTION AND BY-LAWS: T. M. Harding, Canon City; Frank A. Ellis, Jr., Denver; John Sprlestersbach, Alamosa.

RESOLUTIONS: A. H. Griswold, Fort Collins; Mr. Kramer, Monte Vista; A. B. Meservey, Colorado Springs; J. H. Linder, Golden; W. O. Tray, Cripple Creek.

AUDITING: Geo. E. Mayer, Denver; J. F. Wallace, Hooper.

NOMINATIONS: C. C. Huddleson, Lamar; A. Duenweg, Brush; F. E. Gifford, Fort Collins.

Following was the annual address of the president:

PRESIDENT BRANSON'S ADDRESS.

To this, the first annual convention of the Colorado Retail Hardware Dealers' Association, I welcome you, and hope this association, its members and our guests of to-day may live to celebrate many such anniversaries, and may each anniversary find our association bigger, better and stronger than the previous. On this particular occasion I regret that by long established precedent we have come to expect at the annual convention an address from the presiding officer of such associations as this. I realize very keenly my inability to deliver a creditable address before such a body of intelligent and successful business men as constitute this association, and feel much hesitancy in advancing such recommendations as occur to my mind, fearing such recommendations may not meet the approbation of this audience. However, I expect to give ample opportunity for the discussion of any recommendations offered in this address, assuring you I will be loyal to the decision of a majority in adopting or rejecting the same.

A YEAR AGO.

One year ago, on the 21st of this month, at Pueblo, this organization was launched. We met there strangers, and although we have known each other less than a year, I feel that the acquaintances begun at Pueblo are ripening into friendships that, as the years go by, will be cherished so dearly that if we received not one iota of pecuniary benefit from this association the mere privilege of an annual reunion of our members would be worth many times the cost of maintaining the organization. Not only is this association valuable as affording the privilege of acquaintance and exchange of ideas with successful men in our line of business from all over the State, but the better acquaintance with our competitors, our very neighbors in our own towns, often develops an acquaintance that is profitable to both our competitors and ourselves.

While the social features of this association develop a value to its members which alone makes the institution desirable to perpetuate, there are many more substantial reasons why this organization should be continued and strengthened by the membership of every legitimate retail Hardware dealer in Colorado.

During the past year our work has not been entirely barren of results. Through the efforts of the Grievance Committee appointed at our midsummer meeting in Colorado Springs we have come to a better understanding with most of the jobbers from whom we buy, and while we have not yet by any means accomplished the protection we hoped for, yet the influence of our association through the efforts of this convention is good, and I would recommend that this convention provide for the annual appointment or election of such committee by an amendment to our constitution and by-laws.

ONE OF THE MOST SUBSTANTIAL BENEFITS

this organization affords its members is the privilege of carrying fire insurance in the National Retail Hardware Dealers' Insurance Company at a saving of perhaps one-

half the cost of the board rate. Our secretary, being familiar with the plan, will doubtless refer to the same in his report, but I wish to add that W. P. Bogardus, president of the National Retail Hardware Dealers' Association, a man who has been eminently successful in his own business and is held in high esteem wherever known as a conservative and conscientious business man, heartily recommends the management and plan of the National Retail Hardware Dealers' Insurance Company, which high authority certainly commends the plan to our careful investigation with a view to a profitable investment by applying for a policy in said company.

Let us not lose sight of the threatened Parcels Post bill, whose passage means so much to that octopus, the catalogue house, and destruction to the great army of the retail dealers throughout the country. If its passage is defeated it will be through the efforts of the retail dealers' associations, supplemented by the aid of the jobbers' and manufacturers' associations, with most of the honor due the retail Hardware associations through their National Association.

Reference to the National Retail Hardware Dealers' Association brings to mind the interest and enthusiasm inspired in a State association by the presence of a representative from the National Association. This privilege was denied us on this occasion by our dates of meeting conflicting with that of other States to which the officers of the National Association had pledged attendance. This unfortunate conflict of dates can only be avoided by an amendment to our constitution and by-laws leaving the date to be fixed by the Executive Committee after correspondence with officers of our neighboring State associations.

ENLISTING NEW MEMBERS.

The fact that many eligible dealers persist in remaining out of the associations that are striving to make their business more profitable and pleasurable is a problem with which all associations have to deal, and ours is no exception. How to get these fellows in the association is one of the questions I hope may be freely discussed in this convention. We need them both for their money and their influence, and I hope some effective means of reaching them may be devised.

At the organization of this association it was deemed proper to admit as honorary members the Colorado Hardware Jobbers as well as the representatives of Hardware Jobbing Houses, wherever situated, traveling in the Colorado territory. We have enjoyed the pleasure of their good fellowship, as well as accepting the financial aid such membership has afforded, and still welcome them most heartily to all open sessions, and at all times extend them the glad hand of true fellowship. Yet I think this convention should decide whether or not the interests for which we are organized are best protected by continuing such honorary membership or by amending our constitution and by-laws by striking out the clauses authorizing such members. An opportunity to thoroughly discuss this question will be afforded in executive session.

FUTURE ENTERTAINMENT.

The elaborate pleasure program provided by the Denver Hardware dealers for our enjoyment during our stay in this fair city represents a very considerable expense on the part of each individual firm participating, and we naturally will leave your city, as we did Pueblo and Colorado Springs, feeling that the most hospitable and best people on earth are those whose guests we have just been. But we are receiving too much from the hands of our generous entertainers. While we are indeed grateful to the merchants of the three cities where we have met, let us emphatically protest, by resolution or otherwise, against the repetition in the future of any such lavish expense on the part of our entertainers. While we all enjoy the pleasure part of the program, and would not be so anxious to

attend our conventions if this feature were cut out, it is not right that this association should be a burden on the merchants where we meet from time to time, and I would recommend that we provide for pleasure at future meetings at the expense of our association or its members individually.

JOBBER TO CONSUMERS.

Permit me as president of this association the first year of its existence to say we have not accomplished all we hoped to. In fact, the work is just begun, and we should accomplish more the next year than the past, as much of our first year was consumed in getting organized. The tendency of our jobbers to deal direct with the consumer in the immediate territory of members of this association has not, I regret to say, been discontinued. This unjust and unfair practice should, and doubtless will, receive the vigorous attention of the Grievance Committee until discontinued or the powers of the association exhausted in correcting the same.

The success of our claims will depend largely on the justice of our demands. Let us use care, at all times recognizing fully the rights of the jobbers and manufacturers, at the same time standing firm in exacting the same consideration from them. Nor should we stop with the desire to harmonize relations between jobbers and retailers only, but should extend our influence to create a sentiment for fair treatment toward and from competitor and customer as well as jobber and manufacturer.

In conclusion, I wish to express my sincere thanks to many members for courtesies extended. To the members of the Grievance Committee, for excellent work, I am very grateful. The members of the Executive Committee have placed me under lasting obligations by their ever ready help and counsel, and to our efficient secretary, for valuable assistance every week in the year, I can only say, your labors are appreciated and I thank you sincerely. I bespeak the same consideration and assistance from you all for my successor.

Following was the secretary-treasurer's report:

SECRETARY-TREASURER MOYS' REPORT.

It would be impossible to report all of the little details of the secretary's work, or tell of the correspondence and conversations which have occurred in connection with the association. Since our midsummer meeting last July in Colorado Springs our association has had quite a satisfactory growth. Our membership now comprises about half of the retail Hardware dealers of the State. On July 28th your Conference Committee met in Denver and endeavored to come to some understanding with the Colorado jobbers in regard to a better line of protection for the retailer. This meeting was most pleasant throughout, and the many expressions on the part of the jobbers of kindly feeling toward the retailers were quite gratifying. The details of this conference will be reported by Mr. Hunt in executive session. Correspondence with the various Hardware jobbing houses doing business in Colorado has been productive of great good. Several leading jobbers have agreed to confine their business exclusively to the legitimate Hardware dealers, and so far as I have been able to learn they are living up to their agreement. There are some jobbers with whom we have not been able to effect a satisfactory agreement, but hope to do so. Such houses as have agreed to protect us, and are protecting us, should be given the preference in your buying. Complaint has been made by some Hardware jobbers that many of our members buy Tin and Granite Ware, etc., from wholesale grocers; Nails, etc., from lumber yards, etc., etc. We should give the preference always to the legitimate jobber or manufacturer.

THE PARCELS POST BILL

which is pending before Congress is of vast importance to the masses as well as the merchants, both wholesale and retail. During the past few months a campaign has been carried on through this and kindred associations which, we think, will be the means of preventing the passage of this obnoxious measure. Our National Association president and secretary have met with the National Hardware Manufacturers' Association and the National Hardware Jobbers' Association, and have enlisted their good offices in behalf

of our fight. We have caused letters to be written by the Hardware dealers as well as many other merchants of Colorado to our Senators and Representatives from this State, protesting against the passage of this bill, and I am pleased to report our Senators and Congressmen have each written us most satisfactory letters and can be depended on to work against this measure. I would recommend that a resolution be adopted expressing our appreciation of their interest in our cause and further urging them to combat the Parcels Post bill.

NATIONAL INSURANCE COMPANY.

During the past few months the committee from our National Association which was appointed for that purpose completed the organization of the National Hardware Dealers' Mutual Fire Insurance Company under the laws of Pennsylvania. This company have been writing insurance but three months, but have now in force over half a million dollars insurance, distributed in fourteen States. The business of this company is restricted to Hardware dealers who are members of their respective State associations. Its affairs are directed by men connected with the National Association, among whom I would especially mention H. G. Cormick, of Illinois, and W. P. Lewis, of Indiana. Both are ex-presidents of the National Association and two of the brightest men it has been my pleasure to meet. Our National president, W. P. Bogardus, of Ohio, is another director and needs no eulogy from me, as most of you met him last summer and I am sure will say he is a level headed gentleman. C. F. Ladner, of Minnesota, and the president of our insurance company, C. H. Miller, of Pennsylvania, are two men especially valuable to the insurance company from their past experience in similar work, both having been connected with the State Hardware dealers' insurance companies in their own homes. John R. Taylor, of New York, is another level headed director who can be depended on to do the right thing at the right time. For some unexplained reason your secretary was elected as a director of this insurance company. I do not know much about the insurance business, but assure you that to the best of my ability I shall attend to the duties of the position.

I wish to make an especial appeal to every member of our State association to take some insurance in this company. The experience of the Hardware dealers' insurance companies of Minnesota, Pennsylvania and other States convinces us that the National will save you from 25 to 50 per cent. on your insurance. This saving will more than pay all your cost of membership in this association. It will be the means of giving every one a more direct and personal interest in the affairs of this association and cement more firmly the ties of friendship between the Hardware dealers of the State, especially between competitors.

The expenses of this company will be kept at the lowest possible point consistent with good service, but there is necessarily a certain amount which is unavoidable. It is important that as many as possible take policies, as the expenses will not increase in the same ratio as the business increases, and the more business done the greater will be the saving of the policy holders. It has occurred a few times during the past year that confidential letters which I sent out were shown to parties not intended to see them. Some of the honorary members have felt that such letters should be sent to them as well as to the active members, and have criticised me for not sending all such communications to them. I trust that all confidential communications in future will be kept where they belong. It has been a great favor to us to have the financial and moral support which we have enjoyed the past year from our

HONORARY MEMBERS,

and appropriate resolutions should be adopted conveying our sense of appreciation to the gentlemen who have so substantially assisted us in our first year's struggle. I am convinced that it is inconsistent and unreasonable to ask or expect these gentlemen to carry honorary membership with us and simply have the privilege of paying their annual dues and not be accorded any other courtesies than those which would be extended to any non-member. I therefore would respectfully recommend that our constitu-

tion be so amended as to discontinue all honorary memberships.

Owing to the fact that several States have their annual conventions on or about the same dates, it has been impossible for us to have a representative of the National Association with us at this time, and as our date is fixed by our constitution your officers could make no change. I would recommend that the constitution be so amended as to leave the date and place of annual meeting in the hands of your Executive Committee.

At the time of our midsummer meeting *The Iron Age*, *American Artisan*, *Stoves & Hardware Reporter* and *Hardware Dealers' Magazine* especially requested complete reports of our proceedings and volunteered to share the expense of a stenographer to obtain the same. The report was furnished them, and they assisted in paying the stenographer's bill. They have also made a similar proposition for this meeting. I think we should adopt appropriate resolutions concerning the liberal action of these trade journals. Considerable complaint has been made in a general way of our friends the

LUMBER DEALERS HANDLING HARDWARE

in such towns as are amply supplied with regular Hardware stores. As a fair-minded business proposition it seems to me only reasonable that the lumber dealers in such places should discontinue their Hardware departments and the Hardware dealers should likewise discontinue such goods as come particularly in the lumber line. With a view to creating such a sentiment, and of obtaining the view of the lumber dealers as a body, I would recommend that a committee be appointed to confer with the lumber dealers at their headquarters in the Albany Hotel.

ANNUAL DUES.

In my opinion the By-laws should be so amended as to make the annual dues five dollars instead of three dollars, as now provided. From my observation of the past year I do not see how we can pay expenses on three dollars per year. It is necessary to pay one dollar per capita to the National Association.

I have had no instructions about receiving applications for membership and applying the fees thereon in any way except for the fiscal year ending February 16th, 1904. Several have made application within the last few months and feel that they should be paid for a year from the time their application is made. While these people have undoubtedly had the benefit of the work which has been done prior to their taking membership, still I would recommend that all memberships be payable annually in advance, and that the fee accompanying application cover dues for one year from date application is made.

In closing my year's work I wish to thank the members for the hearty support which they have extended me. If I have made mistakes I trust they will be overlooked and that you will believe they were errors of the head and not the heart. My every act has been, to the best of my ability, for the best interests of the association. The work has been laborious and many times disheartening, and perhaps we have not accomplished as much as might be expected, yet I feel we have made a start and it may be at some date in the future we can look back at our first year's effort and feel that it has not been in vain.

I trust you will extend to my successor the same generous treatment which I have had, and that the ensuing year may be a more successful one than the one just closed.

Parcels Post.

The president brought up the subject of parcels post legislation, urging members to correspond with their Senators and Congressmen protesting against pending legislative measures. About a dozen members assured the president that they had already taken independent individual action in this line. The president stated that he had communicated with the Colorado Senators and Representatives at Washington, and had received favorable replies from all except one, who was undecided.

J. M. KILLEN'S ADDRESS.

J. M. Killen, of Pueblo, read a paper on the subject of "The Ideal Relations Between Manufacturer, Jobber and Retailer," as follows:

It gives me unbounded pleasure to meet with you at this, your second annual meeting, and I am pleased to note that the attendance is larger and the enthusiasm perhaps greater than before. When I was asked to make an address before this meeting I left the matter of the subject to your honorable and never tiring president, and he chose "The Ideal Relations Between Manufacturer, Jobber and Dealer." Now, to every one present I wish to confess honestly that that ideal relationship is something that perhaps I have as yet never experienced. I think, however, our president has, as he is so sanguine for the interests and welfare of this association. I believe he lives in the ideas and ideals of what this association will accomplish one hundred years hence, and that he really sees, or thinks he sees, this ideal relationship, and I hope that in time we shall all see it.

AN IDEAL RELATION.

Now, as I am, perhaps like a number of others here, not responsible for what I may do when away from home, if you will not say anything about it I will admit that I have, since leaving home, had the same experience as our president, Mr. Branson—the ideal relationship between jobber and retailer. The jobbers and retailers of the centennial State met together. Not a grievance committee was there from either side. Every one was feeling his best. Not a shortage had been reported to a jobber for more than a year. The retailers all stated that every clerk had been on hand promptly at 7 o'clock every morning, attending to his duties, in fact, better when he was away than when he was present. Their collections were all good—in fact, they had never known them to be equal to the present. Every mail received by the jobber contained letters with remittances, stating that the retailer thought this money would be safer with the jobber than with the bank, and besides, he thought the jobber could use it. Every few days the jobber was visited by his customers, who were shown around in automobiles and extended all the privileges of the city; their visits were returned by the jobbers, who were always received with open arms; a large order containing the full wants of his next season was written up in detail and handed him, and no finer, no better state of mind could be imagined than that of the warm friendship and idealistic views of the retailer and jobber when they met. They talked over plans of taking in at length the World's Fair, and the jobbers assured the dealers that if they wished it they would buy out the whole affair and turn it over forever to themselves and the consumers who buy goods from them. There was nothing too good for them. The various jobbers visit the country homes of the various retailers, and there they have sport royal. There at their country homes, just back of the houses, are flowing streams teeming with trout and other game fish, packed so thick that there is hardly room for the water. They can shoot game of all descriptions from their front doors; in fact, it is not an uncommon thing to find any amount of bear, elk and other large game caught on the clothes line in the morning.

ONLY A DREAM.

But while all these glorious visions were running through my mind, alas! I awoke this morning and found it was only a dream.

Now, gentlemen and fellow hardware men of the State of Colorado, I believe that the condition or relation that will exist between the jobber and retailer will in the future, as in the past, be a common sense, cold, practical matter of dollars and cents. The dealer who has the best prices and can guarantee prompt delivery will get the orders. But the relations between dealers and jobbers have improved greatly within a year. This association in this State has undoubtedly bettered its condition; both the jobber and the retailer have been benefited; and the different jobbers throughout the State have all expressed a willingness to do everything possible to further the interests of this association. There is no doubt that it will grow and prosper, and that every year will find your meetings larger and better.

IDENTICAL INTERESTS.

Now, the interests of the jobber and the retailer are identical. Neither could exist without the other. There

are few retailers who buy goods in sufficient quantities to go direct to the manufacturers and buy the various lines they need, so they use the jobber, who has been able to buy these goods in quantities and assemble them at his stores and warehouses and sell them to the dealers in the quantities they desire and give them prompt service.

Another thing, the manufacturer, as a rule, while we all like him, does not attempt to carry the stocks for the accommodation of the retailer and consumer that the jobber does. If a jobber sends a hurry-up order to a factory and requests prompt delivery of at least a portion of it, nine times out of ten he will receive a reply asking why he did not anticipate his wants three months in advance, in which event they would have had the goods. On the other hand, the jobber carries these things in stock, ready to deliver to the retailer at an hour's notice.

The retailer can in a great many ways assist the jobber and make him more efficient. For instance, it is my opinion that every retailer throughout the various parts of the various jobbers' territories should write his jobbers informing them of the conditions that exist in his locality, and let him know as near as possible about the volume of business he will be able to do in certain lines that are seasonable, the prospects for trade, etc., as it will better fit the jobber to be ready, so that when the season for these goods comes he will be able to send them on without delay.

RETAILERS INVADING EACH OTHER'S TERRITORY.

I have noticed with considerable grief that there has been some little contention between the retailers of various sections that are adjacent to each other—for instance, towns seven to fifteen miles apart. I have a number of reports coming through my travelling salesmen, as well as to myself direct, stating that certain dealers object to buying certain lines of goods because the dealer in the adjoining town had cut into his territory and made a specialty of those particular articles, and had cut the price until there was nothing in it for them. Now, in your executive sessions I would like to see you take up the question of the dealers respecting each other's territory, and if the retail dealer wishes to branch out and sell goods throughout the country tributary to his town, let him do so at a price that will enable the dealer in the adjoining town to live, or, better still, to respect the prices that have been prevalent in that town and hold to those prices, so that the home dealer would get the preference.

MINIMUM RETAIL PRICES.

I am glad to notice that the National Retail Hardware Dealers' Association has taken an interest to the extent of requesting the manufacturers of a number of articles that are used largely by the Hardware trade to establish a line of retail prices so as to increase the profit and make the line more valuable to handle. In most lines of goods where there is any particular competition, or where the line is well known, the jobber is restricted and is not allowed to sell below a certain price, and that price is within a very narrow margin of his actual cost. In response to this request the Winchester Repeating Arms Company has sent out lists giving the minimum retail prices at which they would like their guns and ammunition sold, and as guns and ammunition have always been a class of goods that have been sold with but little margin of profit, I think it would be to your best interest to adhere strictly to the list furnished by the Winchester people at the request of the National Association, and I would be pleased to see other manufacturers send out similar lists of goods that are used as largely and generally as those are.

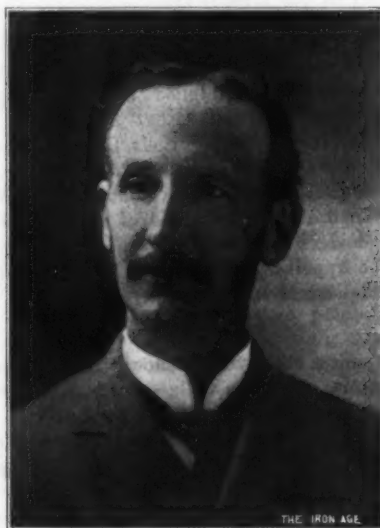
The jobbers not only of this State but of the United States are within the last year no doubt

PROTECTING THE RETAILERS

more largely than they have ever done before. They see the injustice of selling goods to consumers, and I do not think there is a jobber in the State of Colorado who is catering to the retail trade who is not referring consumers' inquiries or orders to the retailer. There are, however, people, especially in small towns, who will not buy at home. They enjoy the sensation of opening a package. They will order, even at the same price or at a higher price, away from home. When a retailer in those towns finds such to be the case, he would be doing himself a favor, as well as

the jobber, by writing to the jobber and having this jobber take the matter up directly with this consumer and sell him, and give the dealer a rebate. In that way they would hold the business, and the retailer in that town would get the benefit. I have a number of customers who are employing the same plan at present, and while, of course, it is not supposed to be known in a general way, it is one way of keeping even with the Eastern department stores, that, as you know, have been selling goods at random to whoever has the price, or can send the money. Frequently the quality of these goods is inferior, and the retailer selling straight goods must compete or lose the business.

Necessarily, a jobber must carry a larger as well as a more varied stock than a retailer, for the reason that he caters not only to the section in which he is located, but to all sections of his State, and possibly several States—a number of jobbers to the entire United States. Therefore the retailer should anticipate his wants, send them in to the jobber as much in advance as possible, notify the



T. M. HARDING, Vice-President.

jobber about what his wants are going to be, and it will better fit the jobber to be ready for him when he is ready for the goods; and he should have patience with the jobber, because there is no jobber living who can carry the endless variety of goods that is used in every locality and not at any time be short. If he did, he would from year to year carry over more than his annual profits amount to.

Gentlemen, I hope to meet you at our next meeting. I trust it will be still larger than this. Any time I can be of service to you, whether it is day or night, I want you to call on me, and I thank you for your attention.

Mr. Killen's paper was followed by a discussion which was participated in by the president, the secretary, and Messrs. Mayer, Spriesterbach, Bushnell, Gladding, Kellogg, Dunweg, Barber, Horton, Griswold, Tritch, Moore and Waterman. On motion of E. H. Gardner an invitation was extended to the jobbers of the State to meet the members of the association at the closing session for further discussion of matters of mutual interest.

Membership Dues Increased.

After a good deal of discussion, it was decided by the association to increase the annual dues of members from \$3 to \$6.

Grievance Committee Report.

A good deal of discussion followed the reading of the report of the Grievance Committee, and the following resolution was adopted:

Resolved, That it is the sense of this association that its members refrain from purchasing Hardware from wholesale grocery houses, department stores or any other concerns that do not protect the legitimate retail Hardware dealer.

Honorary Membership Abolished.

The following resolution relative to honorary membership was adopted:

Resolved, That the membership of this association be composed entirely of retail Hardware dealers, eliminating all honorary membership.

REVISED CONSTITUTION AND BY-LAWS.

A number of changes were suggested by the committee appointed on revision of the constitution and by-laws. Following are the constitution and by-laws as revised:

CONSTITUTION.

ARTICLE I.

Name and Object.

SECTION 1. The name of this association shall be The Colorado Retail Hardware Dealers' Association.

SEC. 2. The object of this association shall be to promote the interests of and secure the friendly co-operation of its members.

ARTICLE II.

Membership.

SECTION 1. Any person, firm or corporation in Colorado engaged in the business of selling Hardware, and known and recognized as a regular retail Hardware dealer in good standing may become a member of this association by subscribing to this constitution and paying the annual dues prescribed by the by-laws.

ARTICLE III.

Officers.

SECTION 1. The officers of this association shall be a president, vice-president, secretary, treasurer, who, with four other members, shall constitute an Executive Committee.

SEC. 2. The president and vice-president shall be elected annually by ballot, and shall hold office until their successors have been elected and qualify. Two members of the Executive Committee shall be elected by ballot at each annual meeting, to serve for the term of two years, and shall hold office until their successors have been elected and qualify. The offices of secretary and treasurer shall be filled by one person, who shall be appointed or removed by the Executive Committee. He shall receive and disburse the funds of the association under the direction of the Executive Committee through vouchers signed by the president and himself, keeping a careful account of the same.

SEC. 3. The Executive Committee shall fix the salary of the secretary-treasurer and require a bond in any amount they deem sufficient, to be approved by the president of the association, the fee of the bond company to be paid by the association.

SEC. 4. In case of a vacancy of any of the offices of this association the same shall be filled by the Executive Committee until the next annual meeting.

SEC. 5. At each annual meeting the president shall appoint an Auditing Committee consisting of two members, who shall examine the books of the secretary and treasurer and report to the association at same meeting.

ARTICLE IV.

Meetings and Duties of Officers.

SECTION 1. The regular meeting of the association shall be held annually during the month of February at such time and place as the Executive Committee may select.

SEC. 2. The Executive Committee shall have full charge of the affairs of the association, subject to the will of a majority of its members in convention assembled, and is subject to the call of the president, or may be called by a majority of the Executive Committee.

SEC. 3. It shall be the duty of the president, or in case of his inability to serve, of the vice-president, to exercise supervisory control over the affairs of the association, and preside at all meetings of the Executive Committee, and to carry out and enforce all measures adopted by the association calculated to improve the condition of the Hardware business.

SEC. 4. The president shall appoint for each county one member, whose duty shall be to obtain membership in this association and encourage the formation of local associations.

SEC. 5. The presiding officer shall appoint at the annual meeting a sergeant-at-arms and a committee of three, who, with the president and secretary, shall constitute a Grievance Committee.

SEC. 6. Amendments to the constitution and by-laws may be made at any regular meeting by a vote of at least two-thirds of the membership present.

BY-LAWS.

ARTICLE 1. The annual dues shall be \$6 per year, payable in advance, and members joining the association during the fiscal year shall pay for the balance of the fiscal year at the rate of \$1.50 per quarter or fraction thereof.

ART. 2. Fifteen members shall constitute a quorum to transact business at any meeting.

ART. 3. Each firm or corporation shall have one vote at any meeting of the association.

ART. 4. All fees and dues must be paid before a person can be recognized as a member or become entitled to act in this association.

ART. 5. The sergeant-at-arms shall guard the door and see that none but members be admitted, except by order of the presiding officer.

ART. 6. The duties of the Grievance Committee shall be to receive all grievances of the members of this association, and in the capacity of a Conference Committee to use all the power of this organization to obtain a satisfactory settlement of all just complaints.

ART. 7. Applications for membership in this association shall be made to the secretary, such application to be accompanied by the initiation fee. All applications shall be acted upon by the Executive Committee, and all such applicants favorably acted upon shall become members of this association.

Resolutions.

The Committee on Resolutions reported the following:

WHEREAS, We, the members of the Colorado State Retail Hardware Dealers' Association, fully realize the deplorable conditions now existing as regards State jobbers selling to consumers; therefore, be it

Resolved, That the Grievance Committee is hereby instructed to draft a request to the Colorado jobbers that they give the retailer specific protection on such lines of heavy Hardware and mine supplies as said committee sees fit to indicate, and that the secretary of the association be instructed to present a copy of such request to each jobber in this State.

Resolved, That we endorse the National Hardware Dealers' Mutual Fire Insurance Company as being thoroughly reliable and worthy of the consideration of our members.

Resolved, That we continue to use our best efforts to defeat the Parcels Post bill now before Congress, and urgently recommend that all members who have not written our Senators and Representatives regarding this obnoxious measure do so at once.

WHEREAS, The Hardware trade journals have faithfully reported each of our meetings, giving our association all merited notice, be it

Resolved, That we hereby endorse their action in sending representatives to our convention, and recommend that all possible facilities for making reports be extended to Mr. Newell, of *The Iron Age*, and all other attending representatives.

Resolved, That a vote of thanks be given by this association to the honorary members for their support and kindly feeling exhibited toward us during the first year of our organization.

Resolved, That a vote of thanks be extended to the Denver merchants, jobbers and representatives for the very generous entertainment provided for our members and families. Be it further

Resolved, That we, as members of the Colorado Retail Hardware Dealers' Association, fully appreciate the very efficient work performed by our officers, especially our secretary, during the past year, and that we heartily endorse their untiring efforts to advance the interests of the association and extend to them a unanimous vote of thanks.

New Officers.

As noted in our last issue, the following officers were chosen for the ensuing year:

PRESIDENT, A. L. Branson, Trinidad.

VICE-PRESIDENT, T. M. Harding, Canon City.

SECRETARY AND TREASURER, F. C. Moys, Boulder.

MEMBERS EXECUTIVE COMMITTEE, J. F. Wallace and J. C. Corbin.

The annual compensation of the secretary-treasurer was increased to \$150.

Mr. Moys was also chosen to represent the association at the national convention, to be held next month in Indianapolis.

MANUFACTURERS' AND JOBBERS' REPRESENTATIVES.

The following representatives of manufacturers and jobbers were in attendance at the convention:

C. L. Buck, Lee-Glass-Andreesen Hardware Company, Omaha, Neb.

G. M. Brown, Lawton Cutlery Company, Chicago. Colorado Saddlery Company, Denver.

R. E. Dreyer, Moore Hardware and Iron Company, Denver.

G. E. Duncan, Cole Manufacturing Company, Chicago.

G. W. Gladding, E. C. Atkins & Co., Indianapolis, Ind.

Mr. Hendricks, Norvell-Shapleigh Hardware Company, St. Louis, Mo.

J. Hildreth, Jr., Winchester Repeating Arms Company, New Haven, Conn.

J. M. Johnson, Elliott Manufacturing Company, Warren, Ill.

F. B. Kelley, Savage Arms Company, Utica, N. Y.

W. P. Kellogg, Kellogg & Stokes, Denver.

J. M. Killin, J. M. Killin & Co., Pueblo.

Chas. Madeira, C. E. Jennings & Co., New York.

F. M. Yentzer, J. E. Porter Company, Ottawa, Ill.

Wm. Mann, Whitman & Barnes Manufacturing Company, Chicago and Akron, O.

McPhee & McGinnity, Denver.

L. L. Moore, Moore Hardware & Iron Company, Denver.
Geo. Tritch, Jr., Geo. Tritch Hardware Company, Denver.

C. W. Wharton, Hibbard, Spencer, Bartlett & Co., Chicago.

R. W. Wise, Norvell-Shapleigh Hardware Company, St. Louis.

W. W. Walton, Sherwin-Williams Company, Cleveland.

The newspaper representatives present were James T. Newell, *The Iron Age*, St. Louis, and S. J. Powell, *Globe-Democrat*, St. Louis.

CONVENTION NOTES.

It is worthy of note the amount of general discussion of practical business questions which each member indulged in at this meeting. It was considered best in the arrangement of the program to diverge from the usual custom, and instead of calling for formal papers to devote sessions to informal discussion, and it is thought that much greater general good will be the result. Increased enthusiasm and life were shown in the deliberations of the convention.

The Denver Hardware trade provided a liberal program of entertainment, which included a trolley ride and smoker on Monday, and a theatre party for the ladies and a banquet at the Windsor Hotel on Tuesday. The banquet arrangements were liberal, and invitations were extended to the visiting delegates, their families and all of the travelling representatives at the convention.

E. C. Atkins & Co.'s representative, G. W. Gladding, exhibited a line of samples of their high-grade hand saws and other specialties. He distributed stick-pin facsimiles of Atkins' saws, and some attractive varieties of circular folders in colors.

C. E. Jennings & Co., of New York, represented by Charles Madeira, exhibited a full line of their specialties, including wood boring, cutting and carpenters' tools. Mr. Madeira is on a trip which will take him to Pacific Coast points, and he anticipates being in San Francisco in time for the California retail dealers' convention during the first week in March.

Norvell-Shapleigh Hardware Company, whose interests were looked after by Messrs. Hendricks and Wise, had fitted up room 108 in the Windsor as headquarters, and the dealers were extended a cordial invitation to take advantage of the facilities for letter writing, etc., and also indulge in a good Havana.

William Mann, of Whitman & Barnes Manufacturing Company, displayed samples of their lines of Wrenches, Garden Hose, Rubber Horse Shoes, Drills, etc. Mr. Mann, with headquarters in Denver, looks after the jobbing interests of his house in Colorado, Wyoming, New Mexico and Texas.

FIFTIETH ANNIVERSARY.

P & F CORBIN have just issued an elegant souvenir entitled "History of the House of P. & F. Corbin," New Britain, Conn., for gratuitous distribution, to commemorate the founding of the business, February 14, 1854. It is in book form, with stiff covers, containing 106 pages, each $9\frac{1}{2} \times 7\frac{1}{4}$ inches of heavy plate paper, copiously illustrated throughout with portraits of the men prominently identified with the growth of the house, pictures of the various plants as they have been and are, reproductions of old time price-lists, characteristic scenes of designers, modelers, chasers, pattern makers, antique catalogues, counting and directors' rooms, scenes of men at work in the shops, together with portraits of salesmen of the different branches and a schedule of the officers of the vari-

ous properties, six in all, dominated by this interest under different names, as follows: The American Hardware Corporation, P. & F. Corbin, Russell & Erwin Mfg. Company, Corbin Screw Corporation, Corbin Cabinet Lock Company and the Corbin Motor Vehicle Corporation. The celebration of this anniversary has had few, if any, parallels in this country in the fact that the man who organized the company half a century ago is the active head of the concern to-day.

FINDLAY AXE COMPANY'S NEW PROCESS STEEL AXES AND HATCHETS.

ATTEMPTS have been made in past years to manufacture Axes and other Edge Tools by casting metal into tool shape direct from the steel furnace or crucible, much costly experimentation having been done along these lines, and heretofore resulting in an abandonment of the attempts and leaving an impression that the only way to make a good and serviceable Axe, Hatchet or similar edge tool was by the forging process.

The Findlay Axe & Tool Company, Findlay, Ohio, who, while manufacturing nothing but High Grade Forged Crucible Steel Tools at their new factory, north of the city, occupied by them about a year ago, still have their old plant in the south part of the town, which was remodeled in 1903 and equipped with furnaces and machinery for producing medium grade Tools by a new process—that of casting steel into tool shape direct from a furnace. It is not claimed that this process furnishes a high grade tool or the professional woodchopper's best quality Axe, but it is their belief that a large proportion of the Axes and Hatchets sold go to consumers who do not require a better quality than that which is now being produced by the new process, and the difference in price is an important consideration. The method of manufacture and some severe tests are herewith described.

The molds are made by machinery, and the factory throughout is equipped with labor saving appliances, molten steel flowing into 300 dozens of tools in less than 30 minutes, on one occasion, the full capacity of the plant producing 20,000 pounds of tool castings a day. In a series of exacting tests made recently castings were selected promiscuously from piles to prove the uniformity of the product. These were forged both hot and cold to demonstrate that the metal had none of the characteristics of cast iron. The eye of the tools were closed by hammering cold and by severe treatment under the hammer it was shown the tool would not break in practical service. By hand hammering the blades of the tools a fine grain is produced similar to crucible steel, the company claim. The process of tempering is the same as that of any crucible tool steel, but the manufacturers say that certain rules peculiar to this metal are observed in tempering which add greatly to the value of the product, the temper colors, however, being drawn in the usual way. Chopping tests were given with Axes and Hatchets. The tools were first sharpened to a keen cutting edge, and then used on an old piece of knotty white oak timber seasoned to the limit of hardness. The cutting edge stood a severe test, and the tools were unharmed. Both Axes and Hatchets were then ground away about a quarter of an inch back from the original cutting edge and another test given them as before, with the same result, this being done to show the superiority of this steel over what has been known in the past as converted steel, which was only good at the first edge. The company assert that by their present processes this new steel will make a better Axe or Hatchet than is required by half of the users of such tools.

This new product is being put out under the following brands: Dusky Diamond Miners' Axe, black finish; Arrow Brand, regular 36 inch Handled Axe, black finish; Arrow Brand Hatchets, bronzed and polished; Top Notch Hatchets, black finish, and Little Giant boys' and hunters' Axes, all finishes.

GERALD M. RICHMOND, formerly with Stone & Webster, Boston, has been elected vice-president of the American Emery Wheel Works, Providence, R. I., and will hereafter devote his whole time to that business.

Indiana Retail Hardware Dealers' Association.

CONCLUDING REPORT.

THE following committees, in addition to those published in our last issue, were appointed by President Bush:

NOMINATIONS: W. L. Hubbard, Scottsburg; W. M. Hunter, Versailles; C. A. Ellis, Carlisle.

COMMITTEE TO ENTERTAIN NATIONAL ASSOCIATION: Mr. Stalaker, Indianapolis; Frank Vonnegut, Indianapolis; Charles Hall, Indianapolis; J. L. Fulton, Portland; W. P. Lewis, New Albany; M. L. Corey, Argos.

CONSTITUTION AND BY-LAWS: Mr. Weinhardt, Terre Haute; E. C. Minas, Hammond; T. N. Lane, Cloverdale.

The Insurance Committee was enlarged by the addition of the following persons: J. G. De Prez, Shelbyville; J. L. Fulton, Portland; W. L. Hubbard, Scottsburg; C. A. Ellis, Carlisle; A. Stratman, Huntingburg; N. R. Soner, Rochester; J. E. McEndarfer, South Bend; J. A. Carnahan, Washington.

Secretary's Report.

The following was the report of the secretary, M. L. Corey:

The year has been an eventful one, and has brought much to encourage and enthuse this body of retail Hardware dealers. At the close of our last convention 182 members had paid their dues. The secretary collected from 63 more during the year, making 245 old members in good standing. We had received 65 new members on February 13, 40 have joined at this meeting, a gain of 100 new members for the year, making a total of 350. We have about 25 good firms who are delinquent, who we hope will be represented at this meeting and put themselves again in active affiliation.

More than 30 members have sold or traded out or made a change in the firm name during the year. As the successor only learns by experience in active business the benefit and advantage of joining our association, we have naturally lost some on this account. Five firms have been dropped because the owner either wanted to sell or was too old to attend our conventions. Two former members, both delinquents, failed, while one firm who were in good standing and who were present, we believe, a year ago, were compelled to make an assignment. I am sure you all will sympathize with Koehlinger & Bauer of Fort Wayne. There may have been other changes unnoticed by us.

Among those who joined us in 1901 and who, I believe, attended every meeting since, was the firm of Price & Co. of Marion. The cordiality and good cheer that always surrounded father and son as they mixed among us will never be forgotten, and many friends will learn to-day for the first time of the death on November 21 last of the junior member of the firm, a most estimable young man, only 28 years of age. It was my privilege to know J. Willis Price well, and I have often met him outside our meetings. His interest in association work never lagged, and your secretary joins you to-day in extending our heartfelt sympathy to the bereaved family, who are called to part with their only child.

In May we mailed 1200 dealers copies of the last convention reports, reprinted from *The Iron Age* and sent to this association with their compliments. A circular mimeograph letter accompanied these booklets and an application blank. We secured 15 members at this time. In July we sent out 900 letters, containing stamped and directed envelopes, asking for insurance pledges and information. The result is given in our insurance report. In December we mailed 1100 booklets entitled "Parcels Post Paralyzes Prosperity," and with these a mimeograph letter, application blank and other matter, and received about 15 members.

We also mailed 500 sample copies of the January *Bulletin* and 300 of the October issue. February 8 we sent out another letter, membership list and application blanks, and inclosed stamped and directed return en-

velope. Over 40 of these blanks came back accompanied by check. Our postage account alone this year is over \$175.

CO-OPERATION IN SECURING NEW MEMBERS.

It is impossible for the secretary to call upon dealers in person in an endeavor to obtain their memberships; therefore this work has been done by mail, and by the assistance of other loyal members we have made excellent progress. Brothers Shidler, Bush, De Prez, Schenck, Fulton, Ellis, Rogers, Shipley and others have each reported new members, and many new firms are represented in this convention to-day for the first time because some good, loyal member has manifested his desire to assist by



M. L. COREY, Secretary-Treasurer.

recommending our association and urged his neighbor to become one of us.

In this connection I want to express my appreciation of the encouragement and assistance so fully and freely given me during my long term as secretary of the Indiana Retail Hardware Dealers' Association by its individual members. There has never been anything but harmony and confidence manifested, and while we have not always secured what you desired, or what we expected, you have always cheerfully accepted the result. A conservative spirit and a willingness to abide by the will of the majority, and indorse the action of the officers, has always prevailed to an unusual extent, and accounts for the great amount of good fellowship and very satisfactory progress that has been made. I am sure it is unnecessary for me to say that I have had the most cordial co-operation of our officers and Executive Committee during the past year. Indiana has always been most fortunate in its choice of leadership. The most perfect harmony has always prevailed, and it has made the work both pleasant and successful. It is an honor to be associated with such men, and I fully appreciate it. President Bush has given freely of time and labor during the year, and has, if possible, endeared himself to every member more than ever before.

WE HAVE HAD VERY FEW COMPLAINTS,

but they have been of an unusual character and hard to adjust. One of them that has hung fire for several months has been considered in Executive Committee session and adjusted entirely satisfactorily to-day.

Our president has explained the objection urged

against jobbers as retailers. We have not taken this matter up in detail, but believe some agreement can be reached whereby our members interested will be protected. We believe that a personal conference between your officers and such jobbers as are complained of should be held.

Some complaint has also been entered on account of the persistent drumming of the blacksmith, mill and factory trade. The business rightfully belongs to local dealers, and in many instances our members do not carry such supplies, and on account of such irresponsibility do not care to sell the blacksmiths any way. In other towns the case is different, and the fight for the business has resulted in antagonism and condemnation of our home jobbers. The jobber urges that if he does not sell it simply transfers the business to supply houses, who canvass the class principally. We have studied the situation carefully and are free to admit that we have found no rule that seems to apply generally to both sides, local conditions considered.

Our association has done much toward obtaining friendly consideration of your competitors' rights and territory, toward establishing better business methods, better understanding and more pleasant, profitable business conditions. In many towns this has changed losing ventures into successful stores, and the dealers themselves no longer cross the street to avoid meeting their competitors. At the same time the business public is better served and better satisfied, and the whole community feels the stimulating influence of general profit and progress. How is it with you?

OUR MEMBERS SHOULD ADVOCATE AND EXEMPLIFY THE DOCTRINE OF FAIR DEALINGS

and honest, broad business fellowship. There are some dealers who figure an estimate on a building, for instance, at cost, or sometimes less; who sacrifice their profit on a Cook Stove to sell a few trimmings; who can't resist an offer for fear their competitor will make the sale; who glory in the fact that he has met a loss; who take chances with doubtful customers and extend credit beyond all reason; who are all things to all men; always on the fence, without politics, creed or religion, vacillating in opinion. Policy, old fashioned, mistaken, weak kneed, is their bugaboo, and their business ideas still run in the old rut of a fight, a frost or a frolic. Some of these conditions apply to every one of us. Let us rise above them, cut them out, and as we go extend the hand of business fellowship to our brother dealers, who will surely respond, seeing that our principles are right and sensible, and the progress is genuine because we have commenced at the right place, where our influence and power are unquestioned, supreme, in our own communities, our own hearts, our own stores.

MUTUAL INSURANCE.

On June 9 all of the officers and members of the Executive Committee were called together in Indianapolis by President Bush, to consider the insurance question. All of the conditions and laws governing the same were investigated, the State Insurance Commissioners interviewed and the secretary was finally instructed to send out letters to all members, also to other dealers, with a view of ascertaining if the necessary amount of applications could be secured to warrant a vigorous effort to organize a State mutual Hardware insurance company; 165 answers were received, about 140 being members, and about \$400,000 of insurance was promised. These 165 dealers carry a total of about \$1,700,000 insurance; their average board rate is about \$1.73, and average years in business 15%. Computing on this basis, these firms have paid \$454,940 in premiums, while their total losses as reported were only \$99,495, leaving \$355,445, or 72 per cent., to the insurance companies for profit and expense. Had the risks been limited to \$3000 the total loss would have been \$40,495, or only 11 per cent. of the premiums, thus leaving 89 per cent. for expense and profit. In view of the statements being based upon actual past experience, they should carry weight in our consideration and are entitled to more credence than any mere condemnation or denial coming from antagonistic sources.

THE SUCCESS OF THE MINNESOTA MUTUAL INSURANCE COMPANY,

who have in four years paid all losses and expenses and accumulated a reserve fund of over \$22,900, and who are insuring in 24 States, shows that the average Hardware risk is not an exceptionally bad and hazardous one, as has been so frequently charged. Their losses for four years have only equaled 17 per cent. of premiums received, while their total expense is 10 per cent., leaving 73 per cent. of their entire premiums to be returned to the insured or placed in their reserve fund to provide against any possible future emergency or unusual loss. When their reserve fund amounts to \$50,000 all their profits will then be returned to the insured, and will undoubtedly average a saving of at least 50 per cent. In 1903 this company's business increased 57 per cent. A good many of our members are insured in this company, and so far as I know they have never met a loss in our State.

THE NATIONAL HARDWARE INSURANCE COMPANY

have also written considerable business with the same results. The formation of solid, substantial mutual insurance companies, we believe, will result only in good. By careful, economical management success is assured. The element of uncertainty is not nearly so great as one might suppose. The old adage of "life is uncertain" is all wrong when applied to humanity in general, and the life insurance agent will tell you exactly how long you will live if he understands the conditions. Generally speaking, they never miss it. Fire insurance has much less uncertainty than life, and we can control and understand true conditions much easier. Mutual insurance eliminates some risk that the old line companies cannot avoid; for instance, every member is directly interested in preventing loss, &c., and becomes more careful and watchful. Again, our risks are confined to the most successful and better class of dealers, and usually those who own good buildings in safe locations. Our goods are less inflammable and less apt to be injured in hasty removal.

A mutual insurance company of our own, confining itself to selected, scattered, limited risks, cannot suffer an enormous loss in any general conflagration, such as faced the old line companies in the recent Baltimore fire, in which many companies lost nearly all their capital and surplus. Again, these old line companies make extremely low and often unprofitable rates to secure large amounts of insurance on factories, department stores, and so-called fire proof buildings, in our large cities. Our smaller towns are taxed to make good the loss of this class.

EXPENSES.

Old line companies pay at least 15 per cent. for solicitors, another 5 per cent. for high priced adjusters, they vote another 2 per cent. for high salaried officials, and then a profit must be shown for the stockholders. These items are almost entirely eliminated in a well managed mutual.

National Convention Report.

J. L. Fulton of Portland read an eloquent report in regard to the proceedings of the last national convention, at which he was present as one of the representatives of the Indiana Association. The report was a very interesting and detailed one, and was listened to with close attention. Mr. Fulton referred to Mr. Corey, who is secretary of the National as well as the Indiana Association, as an "earnest, alert, tireless, adroit, diplomatic, resourceful, practical, hard headed, forceful, faithful, indomitable, optimistic man." In closing his address he alluded as follows to the sort of men that should be sent as delegates to the national convention:

We should send our best men as delegates to these conventions—men that have convictions and are ready and able to express them to the practical advantage of the association; men that are progressive, alert, practical and successful; men that are broad enough to see both sides of every problem and every controversy; men of high purpose and honest principles. With such men our National Association will become a great power to be wielded for our mutual good. It is only through the National Association that we can accomplish many of our

cherished reforms. It is the duty and should be the pleasure of every individual member of every State association to uphold every measure for the improvement and perpetuity of the National Association. Support every move that will strengthen it, make it impregnable in its power by your united and loyal support, and it will return you dividends of cash that will repay you every year many times your outlay of time and cash for these meetings.

Parcels Post.

Secretary Corey made a powerful appeal to members present to exert their influence to secure the defeat of the proposed Parcels Post bill. About 20 members indicated by raising their hands that they had written their Congressmen, and nearly 50 others promised by the same token that they would perform this duty immediately upon their return to their homes. Said Mr. Corey:

It is for you to say how your Congressman shall vote on this important measure. That there is danger in this measure you all know, and it is only a forerunner of others more dangerous. The catalogue houses who are pushing this bill will, if not doggedly opposed, follow it up until the retail dealer will be a thing of the past. With the Parcels Post bill a law it will be impossible for you to compete at all with the catalogue houses and mail order firms. The retail dealer is a friend of the farmer, but unfortunately too many farmers have been persuaded to the contrary by the insidious and persistent advertising done by the mail order houses in their own literature and through certain cheap agricultural papers. Ask your farmer friends whether they would rather have rural free delivery or good roads; whether they would rather have parcels post or penny postage. Post yourselves on these lines and argue and persuade the farmer. When you know yourselves the battle is half won.

WEDNESDAY AFTERNOON SESSION.

The discussion of technicalities connected with the proposed Indiana State Hardware Dealers' Mutual Fire Insurance Company was continued in the first hours of the afternoon session. A report was read embodying the leading facts in the annual report of the State Auditor of Fire Insurance, indicating that fire losses of the old line companies in Indiana amounted to from 65 to 75 per cent. of premiums collected after deducting the agent's commission of 15 per cent. Members related their experience in other mutual companies similar to the one proposed, including the Millers' Mutual Fire Insurance Company, the Indiana Mutual Lumberman's Company and others. A. Stratman of Huntingburg told how the rate of insurance in a local company, including 100 policy holders in his city only, had decreased through successive years until in the fifth and sixth years of its existence the rate was only one-fifth that of the old line companies. It was explained that notes given by members for insurance were non-assessable, non-transferable and non-interest bearing, and that the law provided that policy holders could cancel their insurance at any time, receiving from the company the pro rata balance previously paid by notes. The discussion lasted for about two hours, after which the members were enrolled who wished to take insurance in the new company, together with the amounts which they wished to carry. When the papers were returned to the secretary they showed a total of \$271,000 in insurance pledged by 112 members from among those present. This, added to the \$400,000 previously secured by the officers, leaves only a relatively small balance to be secured by the canvasser whom the Insurance Committee has decided to employ, in order to make up the \$800,000 required by the State law.

Treasurer's Report.

Mr. Corey, the secretary-treasurer, read a detailed report of the finances of the association, indicating the following receipts and expenditures for the year up to but not including the present meeting:

Total receipts.....	\$1,449.71
Total expenditures.....	1,093.98
Balance.....	\$355.73
Collected at present session (estimated).....	\$500.00

Money Value of Membership.

Daniel Stern, publisher of the *American Artisan*, read a paper entitled "Has an Association Membership a Dollars and Cents Value?" as follows:

I wish to thank you for the honor conferred in placing me on your programme. The subject which I have chosen, while not admitting of much eloquence, is one which I believe will contain data which will convince the wavering that they are missing the bargain of the year in not joining the ranks of the various Hardware associations.

It costs a Hardware dealer located in the State of Indiana \$4 a year to belong to the Indiana Retail Hardware Dealers' Association. When the dealer pays this money it is gone forever, as I do not know of a single instance in which my friend Corey ever rebated any portion of his members' dues after he had once got his firm clutch on it in behalf of the association. Four dollars a year is a little over a cent and a third a day, and when little Willie Wilkins goes into your Hardware store and coughs up his 5 cents for a pound of Nails, you can watch his diminutive form retreating through your front door and feel that all your profit on the transaction has been gulped up by that grasping corporation, the Indiana Retail Hardware Dealers' Association.

That is one side of the ledger. Now let us turn to the other and see if the credits granted by association membership should not vastly more than counterbalance this \$4 on the debit side. Let us first take up some other associations in other lines than Hardware and see what they have done for their members. For instance: The Oklahoma grocers formed an association, and within a week, through the freer intercourse between dealers, they secured the capture of a burglar who stole some goods in one store and was trying to sell them in another part of the State, the victimized grocer recovered goods to the value of \$92, which was just \$90 more than his association membership for that year cost him. This association also celebrated its initial week by arresting a short change racket shark. His game was to enter a store, purchase 5 cents' worth of merchandise, throw down a \$5 bill, getting \$4 in silver and 95 cents in change, and just as he receives the change discovers that he had a nickel and asks the store keeper to give him \$1 for the change, and as he receives the \$1 pushes \$5 toward the merchant, saying: "Guess I will take the \$5 bill." The merchant usually hands over the \$5 bill and takes the five silver dollars, and the stranger walks away with \$6, or one ahead of the merchant.

Coming up North, we find that the St. Paul Retail Grocers' Association, by the efforts of its officers, succeeded in having a city ordinance repealed which compelled grocers to pay a fee of \$2 for having their weights and measures examined. This alone very nearly returned their dues to members of this organization. Then, again, this same association succeeded in getting the return of money to grocers in six cases where they had cashed forged checks. In six months their collection department collected \$3280, mostly in bills from two to four years old, and it is probable that a large amount of this money would not otherwise have been secured by the members of the association.

Coming to the Pacific coast we find that the Washington State Grocers' Association recently secured an amendment in their State exemption laws which has saved the retailers belonging to their association several thousand dollars. By hard work they have established a sugar card in 120 cities and towns in that State, which has enabled the dealers in those cities to make a fair profit upon this staple, and has given them \$120,000 extra clear cash in the past two years. I will say, in passing, if the retail grocers of Washington can make a sugar card in that State effective, saving their members \$120,000 in two years, why cannot the Indiana Retail Hardware Dealers' Association establish cards on a variety of Hardware staples and thus secure so much extra clear cash for their membership? Returning to this question of this Pacific Coast Grocers' Association, we find that their credit department collected over \$3000 in 1902 in old accounts which had been abandoned by the members. They have also taught the dead beats in that section of the country

that they have both the time and money to go after them to the finish for the protection of their members.

Coming to our own trade, it is only necessary to refer to the Chicago Retail Hardware Dealers' Association to show that the \$3 they charge for membership is returned to the dealers in its ranks many times over in the course of a year. Take the subject of

CO-OPERATIVE BUYING,

for example. Unfortunately, I have not the latest statistics at hand, but during the year 1901 that association had very satisfactory deals on Refrigerators, Rubber Hose, Blue Flame Oil Cooking Stoves, Oil Heaters, Gas Hose Cocks, Wire Cloth, Stove Pipe, Wire, &c. Altogether they bought \$16,000 worth of goods, on which the members of the association saved from \$3500 to \$3700, or nearly 25 per cent. In the matter of co-operative buying alone, in 1901 the different members of the Chicago Retail Hardware Dealers' Association saved about eight times the cost of their membership, assuming that each member purchased an equal amount of goods for the sake of arguing.

Co-operative buying is not the only way in which this association has proven itself to have a dollar and cents value to its members. Along last August a certain man formed an organization under the title of "The Citizens' Mutual Alliance," with himself as its attorney, and in a quiet and unostentatious way commenced to arrest Hardware dealers and hale them before a certain Justice of the Peace on the charge that they did not obey an obsolete ordinance which required every Hardware dealer selling Fire Arms to keep a register in which he should enter certain specified memoranda as to the name of the purchaser, style of the gun, &c. These Hardware dealers were fined \$7 and costs by this justice. Of course, the association quickly became aware of this injustice inflicted on its members, and the different members were notified as to what steps they must take to conform to the law, and in consequence this alliance man's little graft suddenly flickered out. Had there been no Chicago Hardware Association the presumption is he would have silently pursued his devious tactics until all of the 600 or 700 Chicago Hardware dealers had contributed \$7 each for their negligence in this matter.

It is less than three months ago that an ordinance was brought up in the Chicago Common Council assessing a tax of \$25 or \$50 (I forget which), in the shape of a license fee on every dealer selling fire arms. The Chicago association at once commenced active lobbying and succeeded in shelving this proposed bill. If this bill had passed the members would have to pay this fee or discontinue the sale of fire arms. In the first case the membership saved them \$22, and in the second case it saved them the difference between \$3 and the profits on their annual sales of fire arms of all kinds.

INSURANCE SAVING.

Another line in which association membership has a dollar and cents value is along insurance lines. That this is feasible for Hardware dealers is shown by the marked success which the Minnesota Retail Hardware Dealers' fire insurance has had. The financial condition of the company on December 31, 1903, was as follows: Cash on hand and due from policyholders, \$35,948.58; reinsurance reserve, \$13,008.07; net surplus, \$22,940.51; insurance in force, \$1,308,808; the return premium for 1904 was 30 per cent. In an address before the Wisconsin Retail Hardware Dealers' Association, a fortnight ago, A. T. Stebbins, Rochester, Minn., in speaking of this Minnesota association, stated that they expected to return 40 per cent. in premiums during the present year, and hoped to make it 50 per cent. in 1905.

OF COURSE, A GOOD LOCAL ASSOCIATION,

by establishing uniform prices, giving information about dead beats and other ways, can save the dealer a considerable amount of money. Few Hardwaremen recognize the great potentialities of the National Retail Hardware Dealers' Association in giving them a dollar and cents return for the 2 cents a week which they contribute to the expense of that organization. It may be telling tales out of school to say so, but I know that Secretary Corey has appeared before certain manufacturers of staple lines

of Hardware, and has convinced them that at the prices at which catalogue houses were selling their goods, dealers could not possibly make an adequate profit on same, and as a result an extra 5 per cent. has been conceded by the manufacturers in question to the retail trade. A decided opening wedge having been made in this direction, this policy will undoubtedly be kept up in the future. The saving brought about to Indiana dealers by this has unquestionably amounted to considerable sums in the course of a year, although there are probably many dealers who do not imagine that this rebate was secured through the work of their national secretary, but suppose it is because they looked diplomatically sour at the last travelling salesman from a jobbing house that visited their store.

It is impossible to compute the value to Indiana dealers which resulted to you gentlemen, from the work of the officers of the National Retail Hardware Dealers' Association in checking the attempt of the Chicago catalogue houses to make postmasters their agents, giving them a premium for money order checks sent in.

Concomitant with this was the work of the National in preventing railroad agents and postmasters from having catalogues from these houses sent to them in bulk. If this work had not been checked, it cannot be denied that catalogue sales in a good vicinity would have increased a certain percentage. Furthermore, a certain percentage of this increase in sales would have been in Hardware, and you would have been the sufferers. I believe in this work alone,

THE NATIONAL ASSOCIATION CERTAINLY PAID YOU BACK A GOOD DIVIDEND

on the dollar you spent for this in 1903.

The magnificent work done by Messrs. Bogardus and Corey at Atlantic City in agitating the subject has done much toward deferring, if not defeating, the passage of the Parcels Post bill. Should this bill pass, with its consequent cheapening of the delivery of parcels, the margin which you have offered the catalogue houses, caused by the difference between the bulky freight which you pay and the freight on small packages which they pay, will be largely wiped out, a reduction will have to be made in your selling prices in order to meet their competition, and it will make huge inroads into your margin of profit. You are doing what you can to forestall this by having formed a National Association, and if every other trade—the grocers, the druggists, the shoe men and others—was as active in combating this evil as the National has been, there will be no danger of a Parcels Post.

Another question: ideas concerning your business should certainly be of value to you. Some of the papers which have been read at different Hardware association meetings are especially valuable. Your ex-president, W. H. Weed of Vincennes, is a shrewd and experienced Hardwareman, and yet at a previous convention of this association I heard him make the statement that a single business idea which he heard mentioned in one of the papers read at one of these more than compensated him for the year's dues.

In closing, I would apologize that there has not been more attempt at literary smoothness in this article, but its aim has been to furnish dealers with information which they can use in firing at the doubting Thomases when they get home. Of course, there is a certain percentage of dealers in Indiana and elsewhere who will cling to their \$4 with frenzied desperation, but I believe the great majority are amenable to the argument of the dollars and cents value of Hardware associations, and would urge you, gentlemen, to try and see if you cannot bring them within the fold for mutual benefit.

J. A. Shapker of Mount Vernon read a paper on the "Evolution of Trade," which was given in our last issue.

Question Box.

Mr. Corey took charge of the questions submitted by members. Only a few questions submitted were handled, as the first two or three submitted engendered such spirited and general discussion as to consume the whole afternoon.

Is a jobber justified in selling to mills and blacksmiths Horseshoes, Nails and other lines, if he charges them an

advance over prices to Hardware stores, and if so, about what percentage of advance?

In the discussion which followed more than 50 members signified that they were bothered by the practice of jobbers in Indianapolis and elsewhere selling to blacksmiths and to mills. No definite action was taken, though an attempt was made to have a resolution passed that the association use its influence to induce jobbers, when selling to blacksmiths, if at all, to name prices at least 10 per cent. higher than prices to Hardware dealers. A number of members stated also that the same jobbers who called on them made a practice of selling Nails, Barbed Wire and other lines to dry goods stores and department stores in their towns, and that these stores offered these Hardware lines at cost in order to attract country trade to their establishments. Several jobbers who were doing this were named.

SALE OF TOOLS TO MANUFACTURERS.

Attention was also called to the fact that manufacturers were in the habit of selling manufacturing concerns employing large bodies of machinists and other skilled help, large quantities of tools and appliances, which the firm in turn sold to its employees at cost, thus demoralizing local markets.

CATALOGUE HOUSE ENCROACHMENTS.

This *bête noir*, that will not down, next absorbed the attention of the association. It was introduced immediately by the following question:

How many dealers have compiled lists of people in their field who buy of catalogue houses?

During the discussion it developed that the injurious influence of the catalogue houses was not confined to agricultural communities, but was making heavy inroads into such cities as Evansville, Terre Haute and municipalities of like size. Members were urged as a matter of self-protection to use their buying power to compel jobbers or manufacturers who supplied them their goods to put them on a basis where they could successfully meet the prices quoted by the catalogue houses. They were also urged to make it their business to talk over the matter of catalogue house trade with the farmers, and to mark prices on their goods low enough to enable them to demonstrate to the farmer that his interest lay in trading at home.

RURAL MAIL CARRIERS AS CANVASSERS.

Are rural mail carriers permitted by law to solicit orders for the sale of rural Mail Boxes?

The opinions of members and officers of the association differed as to the answer, but the sentiment seemed to prevail that while it was a general practice among rural carriers, there was a law somewhere that prohibited the solicitation of business of any kind on the part of rural carriers, just as a recent regulation secured through the efforts of dealers' associations has prohibited postmasters from receiving mail order catalogues and other printed matter in bulk and distributing them to patrons of the postoffice.

CREDITS.

Secretary Corey spoke briefly on the evils of long credits, and said: "The man who pays remains your customer and friend; the man you trust loses confidence in you, and concludes that you could not afford to go without your money as long as you do unless you were charging him too much for the goods you sold. Worse than this, the man who owes you avoids your store. You not only lose his trade, but you run a chance of losing the amount he owes, and even when the collection is finally made, it is a serious question whether the profit left made it worth while to carry him as long as you were compelled to."

Z. T. Miller, ex-president of the National Association, related how the president of the Illinois Association had at one time beaten the mail order houses at their own game by buying a lot of standard Shot Guns of a tobacco house that had purchased them to give as premiums, and by advertising these Guns delivered at Streator, Ill., at \$1 less than the mail order houses charged f.o.b. at Chicago. He stated that although the publishers of this advertisement only sold two Guns at that time, it did so much to restore the confidence of the general public in

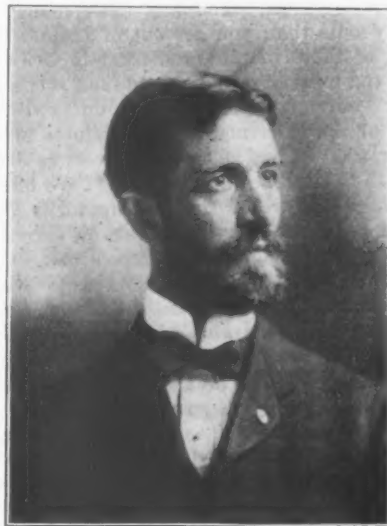
the ability of the firm advertising to quote low prices that it led to a very great increase in the business of that firm in other lines of goods.

THURSDAY MORNING SESSION.

The morning session was called to order shortly after 9 o'clock. Louis C. Bartholomew of Michigan City read a paper on "Adding Specialties and Side Lines," which was given in our last issue.

Advantages of Local Associations.

A. N. Shidler of South Bend read a paper on the "Necessity and Advantage of Local Associations," which was presented in last week's issue. In the course of his paper Mr. Shidler called attention to the Commercial Credit Exchange of South Bend. Its purpose and effect, he said, have been to curtail and centralize credit, increase cash sales, and deal with delinquents, and many hundred dollars of old debts had been collected by this means. It has saved many times its expense during the time it has been in existence and operation. It has also



J. L. FULTON.

made it possible for local dealers to turn down the many schemes and enterprises organized for the purpose of bleeding local business men, who otherwise would not be in a position to refuse to contribute. All such schemes are referred to the "Local Sanction Board," and a reference to a card prominently displayed in the store at once stops argument, and prevents bad feeling. Unless one keeps a list of the amounts spent in a year on various schemes and enterprises, one has no idea how much is spent in these directions.

A sample of the card used by the Commercial Credit Exchange of South Bend was submitted. It reads as follows:

MEMBER

COMMERCIAL CREDIT EXCHANGE.

Solicitors respectfully referred to Sanction Board of the Exchange regarding scheme donations—scheme subscriptions—scheme enterprises—specialty and scheme advertising—scheme trade gifts—scheme trade discounts—collection systems—credit rating and reporting systems, &c.

All members must delay action on the above until acted upon favorably by the Sanction Board and permit issued.

SHARON E. JONES, Richmond, said: I think we should talk on this topic. We are everlastingly asked for contributions by ladies' auxiliaries, ladies' aid societies, &c., and the men are no better, as we are called on by Elks, Masons, Odd Fellows, &c. Their requests are by no means modest. In fact, some merchants give articles worth as much as \$50, and every merchant suffers. This is an injury to trade, and it would be well for Hardware merchants to set their foot down on this matter. Two days do not pass that some one does not come around with

some scheme to sell something for less than it is worth or for a donation. I would pay \$50 to be protected against this sort of thing.

MR. JACKSON, Jonesboro, said: People come to Hardware dealers and ask them to donate here and to donate there. In some cases he digs up with good grace and at other times for policy sake. Suppose they ask him for a Refrigerator or a Steel Range for some charity, and the chances are that before nightfall a dozen kids will come to his store to sell him a chance on the article. He not only gives the article away, but gets a chance to buy it back at retail prices. We have just started a business men's association at Jonesboro. We are imposed on by ticket agents, solicitors, &c. Hereafter if they wish to auction anything off we will sell it to them at wholesale prices. We have a system of picking out dead beats. We discovered that of 17,141 persons who bought on credit in Grant County last year over 23 per cent. are dead beats. We list them and mark their names X, XX, XXX, XXXX, &c., according to the number of merchants who have reported them. But we have a harder class than this to deal with in the persons who are listed as slow pay and limited credit. You pay more money running after these people than you get out of them. There are 19 per cent. of these in this credit list in Grant County. This makes the total of people who do not settle promptly over 42 per cent. of those who buy on credit. In the five months of the existence of our Business Men's Association, over \$600 of bad debts have been recovered.

J. E. McENDARFER, South Bend, said: We have a local credit bureau which works very satisfactorily. I save at least \$200 a year by being a member on account of the various schemes from which it protects me.

W. E. CAMPBELL, Hartford City, said: We have a merchants' association which has been organized for a short time, and which contains over 40 members. I saved \$17 in one case through this association. We have three Hardwaremen in our town and we make prices on certain staples. We are acting in harmony.

PRESIDENT BUSH said: Associations of retail merchants are not organized for vicious purposes, but for self protection. We have a committee to pass on soliciting schemes of all kinds, which we call our Sanction Board. By referring all schemes for tickets, advertising schemes, &c., to them the blame for refusing to patronize these ideas is not placed on any one merchant. It is an elegant way of turning them down. Merchants have an association embracing 4000 members in Indiana; it is known as the Association of Business Clubs, and you can learn about it by writing to Ralph Clark, Anderson, Ind.

Hardware Business in a Country Town.

C. A. Ellis of Carlisle read a paper under the title "Hardware Business in a Country Town," as follows:

Being a small retailer situated in a purely agricultural community and entirely dependent upon the farmer for my business, I can easily see—in fact, cannot help seeing—that there are several menaces that threaten the future of the small retail store.

MENACES TO THE SMALL DEALER.

In the first place, there may be mentioned the rural free delivery. This is certainly detrimental to the best interests of the retailer, as the farmer, who formerly came to town two or three times a week to get his mail and incidentally to do a little shopping, now comes only when necessity requires, and naturally does not spend as much money on this trip as he would on the half dozen that have been interfered with.

Again, it seems highly probable that the electric interurbans will have an injurious effect on the merchants of the smaller communities, as they will afford convenient and cheap transportation to the stores of the cities. The effect of these may be overestimated, yet I do not see that they can be left entirely out of my account.

And the parcel post, that is now being agitated so generally in the entire country, will play its little part in the sum total of disadvantages to the small retailer. This is bound to extend in the future to what the two mentioned above have done in the past—that is, a widening of the market to the consumer. It will in many ways bring the farmer, whose trade is so essential to

our very life, practically face to face with the larger houses in the cities.

And it is in connection with these large catalogue houses that these possible menaces noted above have a real meaning. Rural free delivery, interurban service and parcel post are not bad in themselves any more than a gun that is lying peaceably on the ground is dangerous. But used as a means, used as a weapon in the hands of our giant friends, the catalogue houses, they acquire a more sinister significance. For deadly weapons they become in the hands of the managers of these houses—men who have risen to their powerful position by means of this very ability to turn all facts to their own account. We may expect, therefore, that in the future these men will combine their great advantage of closer buying with the oncoming advantage of quicker, safer and more convenient transportation, and unless checked these houses will make far greater strides in the future than in the past. This is the condition that does now and will tend to more fully face the small retail dealer, and we must bear in mind that it is a condition and not a theory to be dismissed with a word.

THESE FOES MUST BE VIGOROUSLY FOUGHT.

Is this view overpessimistic? Just think, each one of you, over the list of your old patrons, and see if you do not find that this one and that one has been seized with the catalogue house madness. In doing this you will perhaps realize where the small retail dealer stands to-day—that is, if he stands at all. We should recognize this situation as it really exists, not as we would have it. A situation clearly seen can be better faced. It is well to recognize and realize the power of our enemy, the disposition of his forces and his various points of vantage. Then we can plan as well as fight—and planning is half the battle. Face the question with its difficulties fairly and squarely, and a solid solution will come that will hack its way through all opposition. Deny that such a situation exists, close your eyes to the tendency around you, merely because you do not like the trend, you will be dragged down with the current.

In hunting for a solution of the difficulties, however, I think we should not butt our heads against a wall. We must realize that the catalogue houses, with their lieutenants—the free delivery, the interurbans and the possible parcel post—are here to stay, whether we like it or not, and what we must do in order to maintain our own existence is to modify our actions to meet these new conditions. The business world waits for no individual, or no class of individuals; it goes steadily forward, and those of us who but stand still at best, really fall behind.

We have our problem, what are we going to do about it? For one thing, we can fight these various aids to the big houses—and especially the parcels post—to the very last ditch. We can go even further than that, and enlist the support of the jobbers as a class to aid us. The jobbers have interests identical with our own, and they can but read their death in our dissolution. Even the manufacturers themselves can be made to see that we small retail dealers must not be eliminated, for if we were they would have but the one market for their products, and their profits would go down with their prices under the terrific onslaughts of the one buyer—the catalogue house. The manufacturer will be left entirely at their mercy, and mercy in its real meaning has no significance to them. Thus one can see that the interests of the retailer, the jobber and the manufacturer are all one, and this association is urged to use its influence in furthering the closer co-operation of these three classes against the common enemy.

THE PERSONAL IN BUSINESS.

But the average retailer in the small town has something more fundamental to fall back upon in this contest, if he will but take the time to cultivate it. I believe that we have a weapon which, if rightly used, can successfully meet all competition of the catalogue houses—permanent means that will do double sums in arithmetic and aid to our purse without subtracting from our pleasure. What I refer to is the personal relationship that must and does spring up between the dealer

and his trade in the surrounding community; know their wants and their needs, be interested in their successes and failures—in a word, be personally interested in them. This personal touch between man and man, between a dealer and his trade, will do more to kill the influence of the catalogue houses than anything else. What does the matter of a few cents amount to between friends? After all, isn't it better to pay your neighbor a little more than the stranger, especially as your neighbor's very existence depends upon your action? Such would be the spirit engendered by this personal relationship between dealer and trade.

CANVASSING THE COUNTRY.

This may be helped in many ways. With myself, I have adopted the idea of outside soliciting. To illustrate more definitely: In the fall one of our employees is given to understand that his duties are "on the road," and with horse and buggy is required to visit every family in the territory from which we enjoy patronage, and he is to talk Stoves. In this way the prospective purchaser is usually found, and orders usually diverted from the catalogue houses to our own store. At the proper time we take up other lines—Twine, Implements, &c.—and push them during the season that the contemplative farmer is in need and in the humor of making his purchases. In this way we watch our trade, and the personal element is not lost sight of.

Then, again, we can reason with the substantial farmer that has a leaning toward these catalogue houses, and show him that he is

HURTING HIS WHOLE COMMUNITY

by patronizing outside merchants—show him how such action will finally react on his own property and touch him vitally. If you have a good, personal acquaintance with your trade they will not resent such truth telling, and will realize that, considered in the large, they would do better to pay you \$1 for an Axe that they could get at one of these houses for 90 cents.

This personal relationship is to my mind the best solution to the problem of the retail dealer. It is not as glittering as some schemes, but I have found one thing in its favor—that is, that it will work. With this much to recommend it, it should receive some consideration.

Discussion.

In the discussion that followed instances were brought out showing that farmers who had been overcharged by mail order houses for inferior articles, besides having to bear the expense of return charges on unsatisfactory purchases, had become confirmed customers of local dealers on finding that the latter were actually supplying better articles at about the same price, besides saving the farmer the loss of time and the expense and annoyance resulting from having to return the goods.

SHEBON E. JONES said: The catalogue houses do not worry us much. A nickel in the slot machine can sell what a man knows he wants before he comes into a store, and I have impressed upon my clerks that I pay them to be salesmen and not merely order takers. Some years ago there was a Paint which was all the rage in our town and on which profit was very small. I took a trip to a factory and purchased 15,000 gallons of the highest priced Paint on the market, and when I returned I told my clerks that I expected them to sell it to painters and householders. The price I asked was \$1.50 a gallon. I commenced selling this paint on May 13, and by December 1 I had sold 5093 gallons. A certain man in our town purchased 100 squares of Corrugating Roofing from a catalogue house, and a little later came into our store and asked us our price on this roofing. We named our regular price, which was 5 per cent. less than that charged by the catalogue house, without taking into consideration the subject of freight. We follow the market on these goods and the catalogue houses do not. When a salesman comes in to sell us anything we always ask him, "Does your firm sell the catalogue houses?" The dealer who does not put this question is not fighting catalogue houses. The goods the catalogue houses do not carry are those you make a profit on, and it would pay you to encourage other manufacturers.

F. H. PRUNK, Indianapolis, said: It makes no difference what prices you put on your goods, there are always some who will want lower prices. One day a man came into my store when it was crowded with customers and picked out a No. 1 Axe Handle, which was marked 25 cents. He said to me, "Cannot you sell it to me for 20 cents?" I said, "Take it and go. If I sell it to you for 20 cents you will not know whether I am making anything or not. If I give it to you, you will know that you are getting something." "Thank you," said the man, and took it. A few weeks afterward I saw the man driving past on a wagon, and he said, "That Axe Handle was the best I ever bought." Since that time he has come into my store and has purchased Manure Forks, Shovels, &c., and has never asked me take 5 cents off the price.

MR. VOORHEES, Flora, said: The only way to be prepared to meet catalogue house competition is to secure catalogues and have them in your store. When they show you a Gun in the catalogue, say that it is not as good a Gun as you have and talk about the flaws. When they talk about catalogue house Stoves, say that Stove manufacturers occasionally overproduce and they sell their accumulation of goods in their storehouses, which are a little rusty and are two or three years old, to the catalogue houses, while we only handle improved Stoves that are thoroughly up to date. Tell them that your Stove is O.K. and that if it does not work right you will repair it. A farmer who bought a Gasoline Stove of ours complained about it, but the next day our man went out and showed him how it worked and he was well pleased. I saw a Steel Range purchased from a catalogue house in a blacksmith shop across the street. Its walls were only 3-16 inch thick and it cost \$18.64. I told the purchaser that he would not think of buying a similar Steel Range which I was selling at \$15. One of the people in our town bought a round bar from a catalogue house for 15 cents and paid 35 cents expressage.

Auditing Committee.

J. G. De Prez, chairman of the Auditing Committee, presented the report of the committee, showing that the report of the treasurer as presented at a former session of the association was correct. On motion the report was adopted.

Compensation to Secretary.

On motion of A. N. Shidler of South Bend, and Harris Fitch of Lawrenceburg, the association unanimously voted to make an appropriation of \$150 as additional compensation to the secretary, M. L. Corey, for his services during the past year. Mr. Corey expressed his appreciation of the act of the association and the confidence thus exhibited, and his earnest purpose to serve the association in every way in his power.

Insurance.

M. L. Shidler made the following report as to the insurance proposition:

At a meeting of the subscribers to finance the insurance company last evening the following directors were selected from among that number: M. L. Corey, Argos; E. M. Bush, Evansville; J. L. Fulton, Portland; Charles E. Hall, Indianapolis; H. T. Trueblood, Washington; Adam Stratman, Huntingburg; A. N. Shidler, South Bend; T. J. Lindley, Jeffersonville; W. P. Lewis, New Albany. You will remember that it requires nine people to organize an insurance company under the law which we propose to organize under. These nine people have accepted this arduous duty, and I assure you that it will be no small one. I might say further that we at the present time do not feel that it is advisable to effect this organization. These same people will probably be here at the national convention in March, when we hope to complete the organization. We want all the insurance pledged before March 22, when we will meet in Indianapolis.

Short Addresses.

R. R. Shuman, representing *The Iron Age*, was then called upon and addressed the association. He said that he had the pleasure of attending four conventions of Hardware associations during the present month. The meetings had not been of a perfunctory character, but there had been apparent everywhere an earnest attempt

to meet and deal with the various problems presented, and the efforts were bearing good fruit. He had found a solidity, strength and depth of purpose in the Hardwaremen, as exemplified by the convention, that he had not dreamed of before. Previous to his newspaper connection he had been on the road selling goods, and he had generally observed in the different towns that the bankers and Hardware dealers lived in the best houses, and that they appeared to be the most substantial citizens. The speaker remarked: "It always made me mad when I came to a town where the bank president had the best of it. I believe the Hardwareman ought to have the finest home in town, and I am glad that he has the finest store in town. I was much impressed with the feeling of State pride exemplified at the Iowa convention, at Des Moines, last week. I see the same thing here, but it has not been expressed in quite as definite form as out there. There it ultimately took the form of a resolution to the effect that, other things being equal, the Hardware dealers of the State of Iowa should give the manufacturers and jobbers in the State of Iowa the preference in placing their orders, and in return for this favor the Hardware dealers should call upon and in a measure should insist that the jobbers of that State protect them against the incursions of the mail order houses. That sentiment met with favor among the jobbers in that State, and I believe that almost to a man they will use every effort in their power to secure goods at such prices as will permit their customers, the retail dealers in the State, to meet the prices of the catalogue houses."

Sidney P. Johnston, representing *The American Artisan*, was next called, and made a few felicitous remarks, pointing out that his goods went into the hands of the retail trade and none into the hands of the mail order houses.

The Local Newspaper

T. J. Lindley of Jeffersonville followed with a paper entitled "The Influence of Local Newspapers, and Why We Should Cultivate It." This paper was printed last week.

Nominations.

W. M. Hubbard, chairman of the Committee on Nominations, made a report from his committee, presenting the following nominations for officers during the ensuing year:

PRESIDENT, E. M. Bush, Evansville.

FIRST VICE-PRESIDENT, A. N. Shidler, South Bend.

SECOND VICE-PRESIDENT, T. J. Lindley, Jeffersonville.

SECRETARY-TREASURER, M. L. Corey, Argos.

REPRESENTATIVES TO THE NATIONAL CONVENTION: E. M. Bush, A. N. Shidler, T. J. Lindley, J. L. Fulton, of Portland; H. T. Trueblood of Washington.

ALTERNATES: C. B. Frame, North Manchester; T. M. Layne, Cloverdale; J. G. De Prez, Shelbyville; Charles Hall, Indianapolis; Adam Stratman, Huntingburg.

These gentlemen were unanimously elected. Mr. Bush, re-elected president, and Mr. Corey, re-elected secretary-treasurer, expressed in a happy manner their appreciation of the manifestation of confidence shown by the action taken in returning them to office.

Resolutions.

J. L. Fulton, chairman of the Committee on Resolutions, presented the following resolutions, which his committee recommended for adoption:

Resolved, That we are deeply grateful for the presence here of the representatives of the several trade papers, and for the many courtesies extended to us by these papers. They have been loyal, helpful advocates of our cause and deserve our hearty support.

Resolved, That we express our grateful appreciation of and the great pleasure and benefit we have experienced in listening to the various addresses by gentlemen not members of our association, notably by Z. T. Miller, ex-president of the National Retail Hardware Association, and A. F. Sheldon and Daniel Stern of Chicago.

Resolved, That we heartily indorse and commend the magnificent work done by Messrs. Bogardus and Corey, president and secretary of the National Retail Hardware Dealers' Association, leading up to and in the joint convention of the Hardware Manufacturers' and Hardware Jobbers' associations at Philadelphia and Atlantic City last fall; that we are gratified with the progress made toward bringing these important organizations into harmonious and concerted action with ourselves in

our efforts to secure desired reforms and in fighting objectionable legislation.

Resolved, That we express our grateful appreciation of the delightful banquet and entertainment so generously tendered us by the manufacturers and jobbers of Indianapolis at the Hotel English on the night of February 17, and that it is the sense of this convention that such occasions are most powerful agencies in cementing the ties of business and social esteem in which we hold our good friends of Indianapolis and our fealty to our beautiful capital city and its interests; and, be it further

Resolved, That a copy of this resolution be sent to each subscriber to this beautiful courtesy.

Resolved, That we express our thanks to our retail brethren of Indianapolis who have contributed so much time and effort to our entertainment, and have so admirably facilitated our work and contributed to our pleasure in many ways.

Resolved, That we as an association are heartily in accord with the Grain Dealers' Association in condemning the present system of freight movement; that it is the sense of this convention that we should aid in a proper way the efforts to secure legislation to better regulate freight traffic and to secure better freight facilities.

Resolved, That we heartily indorse and commend the magnificent work done by Messrs. Bush and Corey and the Executive Committee for this association the past year.

Resolved, That in the death of Willis Price of Marion, Ind., our association has lost a loyal member, whose presence in our conventions was pleasant and helpful, and that the business community has lost a man of exceptional ability and promise, and that we mourn with his bereaved relatives his untimely death.

Resolved, That it is the sense of this convention that rural free delivery carriers of the United States are and should be the exclusive servants of the mail service; that they should not be permitted to act as agents or carriers for any other purpose whatsoever; that we recommend that they be paid a salary sufficient to support them without the necessity of engaging in outside or contributory work, and that they be prohibited by law from doing any other service and from receiving any tips, fees or other compensation from private individual or corporate interests.

Resolved, That we express our appreciation of the loyal support and helpful work for this association by the Hardware traveling salesmen of Indiana, and that we extend an invitation to them to become honorary members on payment of \$1 per year.

A. N. Shidler moved the adoption of the resolutions by a rising vote. The motion was seconded and unanimously carried.

THURSDAY AFTERNOON SESSION.

District Meetings.

The opening topic of the session was the advisability of arranging for district meetings, a plan that was advocated by President Bush. Sharon E. Jones of Richmond suggested that the State be divided into thirteen Congressional districts, each to have its district meetings once or twice a year. This was objected to by Secretary Corey on the ground that the Congressional districts in Indiana are badly gerrymandered, and he favored the idea of having local meetings of dealers within a radius of 30 miles of different central points. President Bush argued that district meetings would sustain the interest in the association work that might otherwise lapse from one annual convention to the next. A member said, "We ought to organize our association just as the politicians do, from Senator down to ward heeler. Many annoyances arise through the fault of the dealers themselves. Get the dealers together in district associations, who are 20 to 30 miles apart, and we will find that our competitors are better fellows than we thought they were."

Z. T. MILLER, ex-president of the National Association and representative of the Brand Stove Company, Milwaukee, discussed the importance of the formation of

Local Organizations or Merchants' Clubs

to embrace not only Hardware dealers, but the merchants in all other lines. He contended that frequently competing merchants in kindred lines did each other more harm than all outside competitive influences combined, and that there were more evils due to the incompetence and lack of business sense on the part of local merchants than was commonly appreciated. He cited an example of a merchant whose methods had greatly disturbed the

Stove business of his locality. He had eight different kinds of Ranges on his floor, and his whole stock was made up of odds and ends bought without reference to each other and sold in a similar haphazard manner. Said he, "I asked this merchant, 'If a farmer came in to pick out a Range, which one of the eight kinds would you recommend to him as being the best?' The man pointed to one and said, 'I would recommend that one.' 'Why do you choose that one, and what are its points of superiority to the others?' 'Oh, because I have sold a lot of them and they have given satisfaction.' After talking a little further with this man I said, 'My friend, you have missed your vocation; you ought to sell out your stock, everything but two things in your stock, a Pick and a Shovel, and go out with your Pick and Shovel, and at the end of the week you would always be sure of having your \$9, something that you are not sure of now. You have been in the Hardware business for ten years, and yet are unable to tell the difference between Stoves, and yet you are ready to jump at the conclusion that when some farmer tells you he can buy that \$50



Z. T. MILLER.

Stove for \$40 you believe him and cut your price.' Such a dealer does a greater injury to the Hardware trade of his community than all the catalogue houses in existence.

I went to another city, and not a very large one, and called at a big store devoted exclusively to Builders' Hardware. You know how difficult it is to make a profit on Builders' Hardware. I told the proprietor that I was surprised to see such a large establishment devoted exclusively to the sale of Builders' Hardware, and asked him how a man could make it pay. He said: "We used to run a General Hardware store, but some years ago we threw out the Stoves and one line after another, and are devoting our whole time to Builders' Hardware, and are making more money than we ever did on Stoves and miscellaneous lines. We did it by means of a local organization. We have things in such shape that we make as good profit out of Builders' Hardware as we ever did on other lines. A contractor or prospective builder calls with plans on any dealer in town and wants prices. The dealer quotes him his price, and before the man has time to get to any other store in town that dealer has called up the other stores, told them about the man and his plans, and just how much his bid was. No matter how good friends the contractor may be with the next Hardwareman he calls on, that man will protect the first bidder by quoting a higher price. Our association meets at 7.15 every morning, and we all thoroughly understand each other, help each other and learn from each other."

A MEMBER related his own experience as follows: "We have about 18 or 20 tin shops in our city. We used to have a great deal of trouble bidding against each other on jobs and doing work at ruinous prices, often at actual loss. Two years ago we effected a local organization, in-

cluding all tin shops in the city, some being Hardware stores as well, and some being tin shops only. We got together first in a social way, and talked over our differences and difficulties. After two or three meetings thorough good fellowship was established, and we agreed upon a price-list. Since then we have had meetings the first Monday night of each month, and we are pulling together beautifully. Occasionally, of course, some would fall by the wayside a little, when we had to prod them up, but this was not often, and the result is that we have been doing work at a profit ever since. Men are brothers who were formerly at swords' points, and we now exchange our confidences and difficulties and adjust our differences. We are planning to do the same thing for Hardware stores, and will doubtless succeed."

PRESIDENT BUSH suggested that it would be a good idea to divide the State of Indiana into six districts and to organize district Hardware conventions to meet monthly or quarterly. He announced that it had been decided last year that Stove dealers and tinware men should be admitted to the Retail Hardware Dealers' Association, and asked the members to extend to such merchants in their towns invitations to belong to their organization, informing them that they, too, were eligible to the mutual insurance plan.

Z. T. Miller's Address.

Z. T. Miller then delivered an address under the heading, "A Survey." This paper was read in executive session, and was too confidential in its character to admit of publication here. It was a straight from the shoulder talk to the merchant, outlining present conditions and clearly stating the dangers that beset the path of the retail dealer to-day, and placing blame where blame belonged. Mr. Miller called a Spade a Spade from start to finish, and fearlessly gave the names of firms and individuals whose practices were working injury upon the trade.

Executive Committee Appointed.

President Bush announced the following Executive Committee of the association: W. P. Lewis, New Albany; J. L. Fulton, Portland; Charles E. Hall, Indianapolis.

Advertising the Association.

It had been suggested by a number that every member of the Indiana Association print on his letter head the fact that his firm was a member of the State and the National Hardware Dealers' associations. R. R. Shuman suggested that this announcement be made in a uniform form, and submitted to the association a rough idea of a design that might apply, with the suggestion that the secretary of the association supply such members as desired them electrotypes of this design at the cost price. The design presented was a scroll bearing at the top a scale indicating Justice, below which were the words "Member State and National Hardware Dealers' Associations." The president commended the idea and referred it to Secretary Corey of the National Association for consideration.

The Committee on Constitution and By-Laws reported that no changes were suggested.

Next Place of Meeting.

The next annual meeting of the Indiana Association will be held at Indianapolis, the determination of date and selection of hotel to be left with the secretary and the Executive Committee. E. Maier of Chrisney asked that the secretary include in his notification of the next annual meeting a statement of the name of the hotel selected and the rates that had been secured.

The secretary stated that it was due to the management of the Denison Hotel to state to the members that it had not only made special rates to the members, but had given the use of the meeting hall free of charge, had furnished waiters for the smoker without cost, and had sold to the association all the supplies used at the smoker at actual cost.

The convention adjourned *sine die* at 4.30.

A Tribute of Sympathy.

A pathetic incident of the Indiana Hardware Dealers' Convention was the fact that on February 17, George

G. Gary, the Indianapolis representative of the Michigan Stove Company, lost his little daughter, Helen, aged 8 years. When this became known among his brother Stove salesmen they subscribed a fund and purchased a number of elaborate floral pieces. Attached to the flowers was the following:

"Dear George: We extend to you our heartfelt sympathy in this hour of your deep sorrow. Affectionately your fellow salesmen, C. E. Draper, Wm. Clayton, F. T. Meharry, Chas. King, A. B. Cleaveland, W. F. Garretson, W. F. Leckie, D. G. Hughes, A. Kammerdiener, Dave Kahn, N. C. Apgar, John Alexander, A. J. Ross, W. W. Alexander, L. H. Pigott, W. J. Snyder, Z. M. Farmer, Otto F. Allig, L. A. McCammon, A. Fish, R. A. Henry, J. C. Frame, W. A. Rowand, U. P. Baker, W. J. Lammers, J. P. McNamara, V. Hostetter, J. E. Schroyer, N. Christophersen, O. P. Perkins, F. A. Emerson, S. E. Porter, P. M. Pursell."

THE BANQUET.

More than 300 members of the association and their guests sat down to an elaborate banquet in the main dining room of the Hotel English Wednesday evening, February 17. This banquet was given by Indianapolis manufacturers and jobbers, of whom the following were the leading subscribers: Van Camp Hardware & Iron Company, E. C. Atkins & Co., H. T. Conde Implement Company, Union Selling Company, Tanner & Co., A. Burdsal & Co., Central Supply Company, Crucible Steel Company of America, Duckwall-Harmon Rubber & Supply Company, Fairbanks-Morse & Co., Holliday & Wyon Company, Home Stove Company, Indianapolis Stove Company, Knight & Jillson Company, Indianapolis Saddlery Company, Layman-Carey Company, Daniel Stewart Company, Tucker & Dorsey Manufacturing Company, Taylor Belting Company, E. H. Tripp, Parry Manufacturing Company, Union Transfer & Storage Company, Vonnegut Hardware Company, Capital Paper Company, Udell Woodenware Company, Standard Paper Company, American Buncher Company, Indianapolis Tent & Awning Company, Gates-Osborn Carriage Company, Atlas Paper Company, Hollweg & Reese, Charles E. Pearson & Co., Winter & Hill, American Steel & Wire Company.

Toasts.

I. S. Gorden of the Indiana Saddlery Company acted as toastmaster and never allowed the merriment to flag a moment. Each speaker was introduced with some sally that produced a laugh at his expense.

Mayor Holtzman, for instance, was introduced as a man who used to think he was a Democrat, but did not know now what he was, as he owed his election as much to the Republicans as to the Democrats. This gave the Mayor an opening which he was not slow to make use of by stating that he believed it was his duty to be Mayor of the whole people and not alone of the Democrats of Indianapolis. His address was witty, forceful, and to the point.

Edward M. Bush, president of the Hardware Association, was to have replied to the address of welcome, but his voice would not permit of his speaking, and Sharon E. Jones took his place. Mr. Jones conveyed the thanks of the association to the firms of Indianapolis who were giving them so royal a welcome, paid a high tribute to the city for its cleanliness and orderliness, and spoke of the necessity of cleanliness, neatness and system in the successful retailing of Hardware. He also spoke of the value to the members of the association, which gave them an opportunity of exchanging their worst of troubles and their best of plans, enabled them to secure legislation that was desirable, formed the basis of lasting mutual friendships not only among members, but with jobbers and manufacturers. He said that at the present time the association consisted of over half the dealers of the State, an increase of over 40 per cent. since the last annual meeting and representing \$12,000,000 worth of business annually.

Hon. Chas. W. Miller, Attorney General of Indiana, responded to the toast "Our Country." He dilated on the supremacy of America in business, in athletics, in yachting, and said that America had won on land and sea because of the strength and character of the man behind the gun. He gave a humorous recital of an Englishman's

daily life, in which almost everything that he ate, wore and used was American made.

Hon. Wm. L. Taylor, candidate for Governor, referred to the supremacy of Indiana in literary lines, stating that more plays now on the American stage were written by Indiana authors than by authors of all other States combined, and that more Indiana books were being read by the American people and better cartoons were being daily looked at by the reading public than were drawn by the sons of any other State. He urged members of the association to be loyal to their State and to each other, and gave them an idea of the power that they could wield as a closer unit organization not only in business but in the general advancement of the interests of the State and nation.

After the set speeches a number of guests were called upon for impromptu remarks or stories.

SOME OF THE MEMBERS PRESENT.

Following is a list of members who registered at the Wednesday afternoon session—the only session during which a roll call was made. Nearly 100 members whose names are not here included attended the convention:

Arcadia Hardware Co., Arcadia.	Heldt, H. C., Oakland City.
Arnold & Jackson, Liberty Center.	Hamilton, M. M., Brownstown.
Bartholomew & Co., Michigan City.	Harmon & Hall, Indianapolis.
Barrett & Son, Lawrenceburg.	Hall, B. L., Roachdale.
Rowen, F. H., Roachdale.	Hoy Hardware Co., Montpelier.
Booster, L. H., Friendship.	Handman, R. D., La Fontaine.
Boonshot, C. F., Petersburg.	Hubbard, W. S., Scottsburg.
Bever Bros., Newtown.	Hunter, W. M., Versailles.
Broadie & Broadie, Williamsport.	Howe & Shipley, Lafayette.
Baumgartner Bros., Berne.	Harris Hardware Co., Jonesboro.
Baske & Prevo, Kewanna.	Hillsboro Hardware Co., Hillsboro.
Breckenridge-Bradshaw Co., Crawfordsville.	Johnson & Rowland, Richmond.
Bell & Son, Knightstown.	Jackson Bros., Jonesboro.
Ballard, W. H., Muncie.	Judson & Miller, Van Buren.
Burkert, A. H., Gosport.	Jamison Bros., Lafayette.
Brown, J. C., & Co., Lebanon.	Jones Hardware Co., Richmond.
Carpenter & Henley, Newcastles.	Johnson, Jas. R., Muncie.
Cottle Hardware Co., Hartsville.	Johnson & Hollowell, Orleans.
Campbell, W. E., Hartford City.	Johnson-Barnes Hardware Co., Lafayette.
Creighton, W. J., Wabash.	Keller, G. A., Mooresville.
Charters, Brown & Co., Peru.	Ketch Hardware Co., Richmond.
Coen, O. G., Elmore.	Koehring, Chas., & Bro., Indianapolis.
Cawley & Cawley, Kendallville.	Linton Hardware Co., Linton.
Cornwell & Spencer, Montezuma.	Lindley, T. J., Jeffersonville.
Cravens & Gardner, Scottsburg.	Laymon, J. A., Spencer.
Champlin, C., Anderson.	Lorey & Sturm, Jasper.
Chaney, C. H., Montpelier.	Lewis & Creed, New Albany.
Cook Bros., Culver.	Luginbill, E. A., Berne.
Compton & Son, Tipton.	Layne, T. M., Cloverdale.
Cicero Hardware Co., Cicero.	Lebanon Hardware Co., Cloverdale.
Cook, C. B., & Sons, Greenwood.	Laird, Leonard, Otterbin.
Creek & Heldt, Oakland City.	Letts Hardware Co., Otterbin.
Crawford, G. W., Morgantown.	Little & Oakley, Muncie.
Carnahan, M. J., & Co., Washington.	Minas, E. C. Co., Hammond.
Darby, E. L., Colfax.	McCormick & Sons, Albany.
Dufenbach Hardware Co., Huntingtonburg.	Miller, G. H., Mulberry.
De Prez, J. G. & Co., Shelbyville.	Miller Hardware Co., Sidney.
Dooley & Dooley, Rockville.	Morris & Aspy, Eaton.
Davis Hardware Co., Bloomington.	McEndarfer, J. E., South Bend.
Doble & Griffey, Shelbyville.	McCormick, O. M., Farmland.
Dick, Edgar, Terre Haute.	McKee, W. L., Milroy.
Duncan & Vawter, Franklin.	McBeth, David, Clinton.
Dribele, John, Kendallville.	Maler, E., Chrisney.
Ellis, C. A., Carlisle.	Maler, Charles, Indianapolis.
East, D. C., & Sons, Anderson.	Moon & Opp, Otterbin.
Frame, D., & Son, North Manchester.	Meyer, John, & Bro., Batesville.
Fitch, Harris, Lawrenceburg.	Miller, E. P., Warren.
Fields, Merrell & Zuck, Wayne-town.	Marbaugh Bros., Monterey.
Fox, R. E., Markle.	Miller, W. C., Akron.
Fenner, S. L., Hardware Co., Terre Haute.	Moon & Yoder, La Grange.
Fowler, J. H., New Richmond.	McNamee, King & Hipskind, Wabash.
Fulton Hardware Co., Portland.	McCrae & Brown Co., Brazil.
Franklin Hardware Co., Franklin.	Miller & Lortman, Akron.
Freitag, Weinhardt Co., Terre Haute.	Mutz, Oscar U., Edinburg.
Gorham, R. C., Kirklint.	Mellott & Livingood, Mellott.
Gumm, W. L., Remington.	Mobley & Boling, St. Paul.
Gable Hardware Co., Hartford City.	Marion Hardware Co., Marion.
Gage Hardware Co., Indianapolis.	Mullin & Head, Bunker Hill.
Gwinn, J. W., Martinsville.	Neu, C. H., & Co., Bourbon.
Gordon & Bishop, Muncie.	Neeld & Co., Bloomington.
Gardner, M. F., Indianapolis.	Nichol & Makepeace, Anderson.
Gardner, Ed. R., Monticello.	Nieman, J. H., Sunman.
Gardner, Chas., Monticello.	Nelson, A. F., Boston.
Gardner, J. T., Scottsburg.	Ordung, J. C., Hanna.
Gaddis, Dinwiddie, Frankfort.	Orleans Hardware Co., Orleans.
Gough & Snyder, Fairland.	Price & Hauser, North Liberty.
Gohman, John B., Indianapolis.	Peru Mercantile Co., Peru.
Heard, W. H., Bunker Hill.	Phillips, D. B., Reynolds.
Horner, Robert E., Daleville.	Peck, O. S., St. Paul.
Hemphill, Oran, Franklin.	Prunk, F. H., Indianapolis.
Hiatt & Co., A. J., Lynn.	Randall & Brown, Fortville.
Hobbick & Magee, Winchester.	Reichenbach & Wickenhaier, Huntington.
Hess & Hess, Dana.	Richardson, L. C., Blountsville.
Hamilton, J. W., Medora.	Renner, H. L., Sandborn.
Hess, L. J., Plymouth.	Rector, John, Co., Dugger.
Huffman, F. C., Mount Zion.	Runstidt Bros., Rockport.
	Rogers & Cole, Bluffton.
	Reitemeyer, F., & Son, Lafayette.
	Rogers, A. B., Warrington.
	Risinger & Ellis, Carlisle.
	Richey Hardware Co., Sheridan.
	Rogers, Philo, Bluffton.
	Romary, Goegelein & Co., Ft. Wayne.
	Shawhan, Boonshot & Co., Petersburg.
	Stinson, D. H., Kendallville.

Shanklin, B. G., Frankfort.
 Sharp Brothers, Ossian.
 Smythe & Hanna, North Salem.
 Shirley, C. H., Orleans.
 Smiley Bros., Matthews.
 Scott, W. G., Sullivan.
 Stratman, A., Huntingburg.
 Staiger Hardware Co., Michigan City.
 Shuee-Bahis Hardware Co., Lafayette.
 Smith & Tilson, Franklin.
 Schenk, E. B., Hardware Co., Mt. Vernon.
 Smith's, C. C., Sons Co., Terre Haute.
 Stoner, H. R., Rochester.
 Shidler Bros., South Bend.
 Slayter Hardware Co., Argos.
 Stewart & Naftzger, North Manchester.
 Spaeth, H. P., & Co., Aurora.
 Spencer, C. W., Waveland.
 Smith, F. M., & Co., Ft. Wayne.
 Summer, A. B., & Son, Hillsboro.
 Steinhart, M. L., Ireland.
 Strong, N. H., Hardware Co., Shelbyville.
 Strack Hardware Co., Mt. Vernon.
 Smith, A. W., New Ross.
 Shaw Hardware Co., Worthington.
 Shaver, W. H., Carthage.
 Scott, R., Muncie.
 Torbet & Romey, Columbia City.
 Taylor, H. W., Lynn.
 Trueblood, H. T., Washington.
 Thayer, H. B., Co., Greenfield.
 Thomas, James, Greenfield.
 Twibell & Co., Wm. M., Keystone.
 Thomas, Milo J., Corunna.
 Todd & Son, Lagro.
 Tipton, J. E., Hardware Co., Tipton.
 Thomas & Son, Greenfield.
 Von Behren Hardware Co., Bloomington.
 Voorhees Bros., Flora.
 Washburn, G. A., Earl Park.
 Wertenberger & Millbern, Mentone.
 Weinland & Sons, G. D., Hope.
 Williamson Hardware Co., Bluffton.
 Weir & Cowley, Ligonier.
 Wales-Hunt Hardware Co., Converse.
 Wagner Bros. & Co., Vernon.
 Wagoner & Sons, T. P., Knights-town.
 Weinhardt, A. G., Terre Haute.
 West & Mossup, Marion.
 West-Young & Steffy, Sheridan.
 Zook, Edward, Rochester.

SMOKER.

Following their usual custom, the members of the association tendered to traveling salesmen and other guests a smoker in the dining room of the Denison Hotel Tuesday evening. An address of welcome, delivered by Secretary Corey, was followed by a general programme of a vaudeville character, the only talent not furnished by the theatrical profession coming from A. F. Hansen, the Toledo representative of the White Lily Washer Company, who gave a sleight-of-hand performance enlivened by running talk of a humorous character.

EXHIBITS.

The lobby and corridors of the Denison Hotel were emblazoned with cards and posters, and every foot of available space filled with exhibits of lines calculated to interest Hardwaremen. There were so many exhibits that it is impossible to enter into details of any one of them at this time. The following is an alphabetical list of exhibits, together with names of representatives in charge, articles exhibited and brief mention of souvenirs given:

ACME WHITE LEAD & COLOR WORKS, Detroit Mich., represented by S. W. Hart, sales manager for the Middle West, and W. J. Selvage, Indianapolis. Exhibited in room 17 a line of Ready Mixed Paints.

AJAX PAINT COMPANY, Indianapolis, Ind., had an exhibit of their Monument and Woodpecker brands Prepared Paints, in charge of A. D. Woodford. Visitors were given color cards.

ALLIETH MFG. COMPANY, Chicago, had an exhibit in a show room off the main lobby, in charge of F. E. Sladden, Chicago, and J. A. Benson, Indianapolis. They showed their Reliable Round Track Store Ladders, Door Hangers, Merchandise Carriers, &c.

AMERICAN STEEL & WIRE COMPANY, Chicago, was represented by Ira L. Sawd and Jas. A. Bowd.

AMERICAN WIRE FENCE COMPANY, Chicago, represented by W. A. Collis, manager of sales, and J. C. Thompson, occupied room 124. They showed samples of their Model Spring Steel Stay Fence, and were active in explaining the advantages of their style of Fence, both in design and material.

E. C. ATKINS & Co., Indianapolis, Ind., Frank Wells, J. W. Davis, Edward Springer. Exhibit in parlor of their Saws, including a special line of Hand Saws and Jones' new Coping Saw. They gave Whetstone and stick pin souvenirs.

ESTATE OF P. D. BECKWITH, Dowagiac, Mich., had one of the largest and most popular exhibits at the convention in Parlor D. D. G. Hughes, W. T. Leckie and G. W. Thompson were in charge. Doe-wah-jack, in full chieftan's garb, dispensed punch. Visitors were given beer steins and decorated with souvenir buttons.

J. A. & W. BIRD & Co., Chicago, were represented by H. J. Stephens and F. S. Howard, who stated that Hardwaremen were meeting with success in the sale of Flint-kote Roofing.

THE A. BURDSAL COMPANY, Indianapolis, Ind., had an

exhibit in the second floor corridors in charge of G. G. Allen, vice-president; A. F. Herzsch, A. O. Stevens and Harry Reed. They showed Homestead Liquid Paint, steamboat colors, and gave souvenir tape measures. A model of a river steamboat, painted with their colors, attracted attention.

CANADIAN CORDAGE COMPANY, Petersboro, Ont., were represented by Geo. N. Foresman of Lafayette, Ind.

CHICAGO STEEL MFG. COMPANY, Hammond, Ind., were represented by Frank J. Baldwin, general manager of the company.

COLE MFG. COMPANY, Chicago, H. G. Baker and C. A. Woolley made an exhibit of Hot Blast Stoves and Ranges.

H. T. CONDE IMPLEMENT COMPANY, Indianapolis, Ind., represented by Will Cumback, Jr., secretary, and Frank H. Martin, showed samples of Binder Twine in Room 24.

DETROIT WHITE LEAD WORKS, Detroit, Mich., W. H. Beckett and Walter Lindley. Exhibit in Room 15 White Lead, Stains and Floor Paints. Souvenir, celluloid book mark.

ELLIOTT MFG. COMPANY, Warren Ill., F. L. Anderson in charge. Exhibited a full line of Anti-Rust Tinware in Room 55.

EXCELSIOR STEEL FURNACE COMPANY, Chicago, C. D. Maxson. Exhibited samples of their Adjustable Furnace and Stove Pipe, and gave a glass pen souvenir.

THE FISCHER-LEAF COMPANY, Louisville, Ky., J. W. Hackney. Showed photographs of Arizona Stoves and Ranges, and gave as a souvenir a pocket comb and case.

FOREST CITY PAINT & VARNISH COMPANY, Cleveland, Ohio, C. A. Young, Indiana agent in charge, displayed samples of Paint and Varnish Floor Stains, Leads, &c. Souvenir stick pins were given to visitors.

GATES-OSBORNE CARRIAGE COMPANY, Indianapolis, represented by L. M. Osborne, president; F. E. Gates, vice-president; Wm. A. Tuttle and S. S. Helms. Exhibited their new design Three-Quarter Surrey and Phaeton Seat Buggy in Room 1.

GEM CITY STOVE COMPANY, Quincy, Ill., occupied Room 3, with W. A. Rowand in charge. They showed their Stoves, and presented each visitor with a big red apple and a memorandum tablet.

GERMER STOVE COMPANY, Erie, Pa., had F. A. Emerson to tell the Hardwaremen the good points about Radiant Home Stoves and Ranges.

GIBSON-SHORT CYCLE & AUTOMOBILE COMPANY, Indianapolis, Ind., exhibited one of their Orient Motor Buckboards in the second floor corridors—the only auto at the convention. The exhibit was in charge of C. E. Gibson, general manager, and E. E. Short, secretary and treasurer.

HEATH & MILLIGAN MFG. COMPANY, Chicago; W. F. Calvert, Southern Indiana representative; E. F. Zander, Western Indiana representative. Showed lines of Paints by means of their store cabinets of color cards, together with advertising matter, Sunbonnet booklets, and Sam Walter Foss' poem, "The Path the Calf Made."

HIBBARD, SPENCER, BARTLETT & Co., Chicago, occupied room 19 as their campaign headquarters, with A. P. Reiter in charge, assisted by F. H. Warren, Jr., Indiana sales manager; E. W. Straubinger, A. L. Brown, F. S. Greenleaf, H. S. Dell, H. A. Munson, W. H. Jackson. They showed a line of Hibbard, Spencer, Bartlett & Co.'s Air Tight Sheet Iron Stoves.

HOME PRIDE RANGE COMPANY, Marion Ind., represented by C. D. King, R. M. Houston and C. M. Halderman, exhibited their Malleable Blue Steel Patented Top and Malleable Japanned Plain Top Ranges in room 54.

HOWARD STOVE & MFG. COMPANY; G. A. Nelson advertised the Howard Overdraft Heating Stove in room 21.

E. H. HUENEFELD, Cincinnati, Ohio, represented by W. J. Lammers and N. C. Apgar, exhibited a full line of Boss Hot Draft Stoves.

INDIANAPOLIS TENT & AWNING COMPANY, Indianapolis, Ind., with Ed. Risenberg and William Bradford in charge, exhibited in second floor lobby a line of Buggy Storm Curtains, Indianapolis Lawn Swing, Gold Medal Camp Furniture and Horse Covers, and gave to visitors a large photo of May Mannering.

JOLIET STOVE WORKS, Joliet, Ill., represented by A. Kammerdiener, had headquarters in room 2, where they showed photographs of their Stoves and samples of Non-Scorching Cover, Controlling Damper and Oven Thermometer. They gave a souvenir match safe.

F. & L. KAHN & BROS., Hamilton, Ohio, represented by Charles E. Draper and F. T. Meharry, showed a line of Estate Stoves and Ranges and gave each caller a carnation.

THE KINSEY MFG. COMPANY, Dayton, Ohio. J. R. Brower exhibited the Kinwood line of Gasoline and Blue Flame Oil Stoves in room 48.

LINCOLN STOVE & RANGE COMPANY, represented by W. F. Garretson, advertised their line in room 21.

A. J. LINDEMANN & HOVERSON COMPANY, Milwaukee, displayed a line of Steel Ranges and Heating Stoves. N. Christopherson was in charge.

LAMB WIRE FENCE COMPANY, Adrian, Mich., represented by Fred. C. Stevenson, showed samples of their Fencing.

LAWRENCE BROS., Sterling, Ill., had an exhibition in the second floor corridor in charge of Edwin C. Benne-man and B. F. Isbell. They showed a varied line, including Door Hangers, Strap Hinges, Butts and their new Cast Iron Ball Bearing Chimney Top Ventilator.

LAYMAN-CAREY HARDWARE COMPANY, Indianapolis, Ind., represented by J. T. Layman, president; Thomas Layman, vice-president, and T. D. Layman, secretary-treasurer, held open house in Parlor C, entertaining their visitors with piano and pianola.

MAJESTIC RANGE COMPANY, St. Louis. A. B. Cleveland, Room 49, showed photographs of the Majestic Stoves and Ranges, and gave a rich souvenir book of World's Fair views.

MICHIGAN STOVE COMPANY, Detroit, Mich., were represented by George G. Gary, Indianapolis.

NATIONAL LAWN FURNITURE MFG. COMPANY, Indianapolis, exhibited in lobby a new Lawn Swing.

PEERLESS FOUNDRY COMPANY, Indianapolis, Ind., through Herbert Wilding, advertised their Gasoline and Oil Stoves.

PETERS ARMS & SPORTING GOODS COMPANY and PETERS CARTRIDGE COMPANY, Cincinnati, Ohio, represented by J. E. Reid, New Paris, had a large exhibit showing a very complete line of Sporting Goods and Ammunition. Mr. Reid explained that his firm had taken up the jobbing of a general line of Sporting Goods on a large scale January 1.

PITTSBURGH STEEL COMPANY, Pittsburgh, Pa., had headquarters in Room 137, where they showed samples of Wire and Nails.

J. E. PORTER COMPANY, Ottawa, Ill., with C. B. Howland in charge, displayed their Model Hay Tools, Presses and Barn Door Hangers in Room 23, and presented visitors with leather pocketbook as souvenir.

ROBESON CUTLERY COMPANY, Rochester, N. Y.; H. W. Beagle. Large exhibit Shears, Razors, Knives, Table Cutlery, &c. Gave Knife Opener and Pocket Knife souvenirs.

ROCHESTER STAMPING COMPANY, Rochester, N. Y., had a large exhibit in charge of H. W. Beagle. They showed a new type of Chafing Dish which will burn continuously for four hours and will boil water in four minutes, also brilliant Rust Proof Tin Ware, Silver Nickel Ware, Argentine Table Ware, &c.

STODDARD MFG. COMPANY, Dayton, Ohio, exhibited in Room 42 the new 1904 design Tiger Disk Corn Planter. Exhibition in charge of H. Quig.

SUPERIOR MFG. COMPANY, Ann Arbor, Mich., D. E. Seeley, secretary and treasurer; W. D. Royce, salesman, had an interesting display of Ann Arbor Quick Lighting Gasoline Lamps in operation in Room 20. One of these Lamps was also hung in the convention hall.

TAYLOR & BOGGIS FOUNDRY COMPANY, Cleveland, Ohio, showed a line of Locks in Parlor A.

E. K. TRYON, JR. & CO., Philadelphia, Pa., were domiciled in room 255. They were represented by John P. Walter, who called attention to their line of Guns, Fishing Tackle, &c.

VAN CAMP HARDWARE & IRON COMPANY, Indianapolis, occupied two rooms with an exhibit of Beryl Enameled Ware, Sewing Machines, Bicycles, Garden Plows and

other Hardware Specialties. Attending the exhibit and convention were Ray Van Camp, secretary; S. G. Van Camp, assistant secretary and general manager; M. C. Louis and E. McCammon.

VOSS BROS. MFG. COMPANY, Davenport, Iowa; C. E. Mearns, sales manager, and H. C. White. Ocean Wave and Eagle Washers. Exhibit in rotunda.

WALLIS, ROBINSON & Co., Chicago, exhibited their Invincible Wedge Plate Hammer and other Tools.

WHITE LILY WASHER COMPANY, Davenport, Iowa; Sam T. White; A. F. Hansen, Toledo. Exhibit and demonstration of Machine in lobby.

WOOD SHOVEL COMPANY, Piqua, Ohio, were represented by S. S. Gould, vice-president.

YALE & TOWNE MFG. COMPANY, New York, had an unusually elaborate exhibit of Builders' Hardware in room 41, which was visited not only by members of the association but by large numbers of architects and contractors of the city. Louis H. Piggott of New York was in charge. A souvenir in the shape of a Yale Key pin was given to visitors.

SIMMONS HARDWARE COMPANY'S CATALOGUE F.

SIMMONS HARDWARE COMPANY, St. Louis, Mo., have issued Catalogue F, three volumes, containing in all 2164 pages. The larger of the three books contains 1400 pages, relating to the general line of Hardware. One of the smaller volumes, No. 443, is devoted to Builders' Fine Hardware and such other goods as are used by the building trade. Catalogue 444 relates to Tin and Enameled Ware, Stoves, &c. The pages of the three volumes are numbered consecutively, with index complete for each volume, while the index of the largest book shows the pages of the different catalogues on which the goods are illustrated. Colored illustrations are used quite freely for Hammers, Hatchets, Harness Goods, Paints, Freezers, Builders' Hardware and Enameled Ware. In the arrangement of Builders' Hardware, Door Locks are illustrated in different designs, the opposite pages showing the trimmings which go with each of the designs, thus making it an easy matter for purchasers to select Hardware for an entire house which will be in harmony. The company refer to having received many complimentary letters from the trade on the convenience, arrangement, durability of bindings and size of the catalogues as suitable for use on the counter or in the office.

BALTIMORE HARDWARE INTERESTS.

WE are in receipt of additional advices from Baltimore in relation to the recent conflagration, to which reference was made in our last issue.

ANDERSON & IRELAND COMPANY, wholesale dealers in Hardware, Cutlery and Guns, formerly at the northwest corner of Light and Pratt streets, have secured new quarters at 120 Hanover street, with warehouse facilities at 617 West Pratt street. They are greatly in need of catalogues and price-lists, all of theirs having been destroyed by the fire. The building they formerly occupied was said to be the oldest in Baltimore used for Hardware purposes, having been erected in 1805 and used as such for the elapsed 99 years. They are rapidly getting in a new stock and starting their men out to hustle for orders.

JOHN BROWN & SONS, dealers in Hardware and Machinists' Supplies, are now at 213 Courtland street, and likewise desire manufacturers to send catalogues and price-lists to replace those lost.

HUBBARD & EAGLESTON, dealers in Builders' Hardware and Fine Tools, formerly at 100 West Baltimore street, are now at 106 Clay street, where they will value immediate sending of catalogues and price-lists by manufacturers and jobbers of these lines of goods.

In a reference to the annual meeting of the Standard Chain Company, Pittsburgh, Pa., in last week's issue, the name of Arthur E. Crockett, secretary, was inadvertently given as one of the board of nine directors, in place of Charles A. Painter, as it should have read. Otherwise the new board is as given.

Pennsylvania Retail Hardware Dealers' Association.

CONCLUDING REPORT.

THE attendance at the Tuesday sessions of the convention was interfered with by the fact that it was election day throughout the State, and a good many of the merchants remained at home attending thus to their public duties. On Wednesday there was a marked increase in the attendance, and it is suggestive of the spirit which prevailed that more than 20 new members were enrolled during the sessions. A cordial welcome given to the delegates by the Mayor and the Hardware houses of the city was much appreciated by the members, and throughout the gathering a fraternal and earnest spirit prevailed. The success of the meetings was materially aided by the fact that the sessions were held in an exceptionally comfortable and attractive hall. The proceedings closed on Wednesday evening with a banquet, further particulars in regard to which are given below.

INSURANCE.

The report made by the officers of the Pennsylvania Retail Hardware Dealers' Fire Insurance Association commanded the earnest attention of the convention at several of its sessions. The members were desirous of having full information in regard to the lines on which the Insurance Association is conducted, and those in charge of its interests took pleasure in advising them fully in regard to all the details of the organization, what has thus far been accomplished, and the plans for the future. It was generally recognized that the insurance feature of the association work had been conducted with exceptional judgment and skill, and the large measure of success which has attended this department was very gratifying to the association. As looking ultimately to a more direct connection between the Hardware Dealers' Association and the Fire Insurance Association, the following resolution was adopted:

Resolved, That the question as to the desirability of some modification of the relationship of this association to the Hardware Dealers' Mutual Fire Insurance Association of Pennsylvania so that the growth of the Pennsylvania Retail Hardware Dealers' Association shall thereby be more directly and efficiently promoted, be respectfully referred to the Executive Committee to report at the next meeting of the association.

The opinion was expressed by those most actively identified with the insurance feature that it would be feasible before long to take the action such as is suggested in the resolution. The wisdom of deferring such action until the Insurance Association is thoroughly established and in permanent and successful operation was acknowledged by all. The trade in Pennsylvania are certainly to be congratulated on the manner in which this important feature of association work has been developed and the promising future which is before it.

THE PARCELS POST.

The address made by W. P. Bogardus, president of the National Association, put before the convention in clear and forcible manner the objectionable features of the Parcels Post bill now before Congress. The subject was also touched upon several times during the discussions of the association. There was entire unanimity of feeling that the bill is contrary to public policy and is fundamentally objectionable on general principles. As expressing the views of the association the following resolution was adopted:

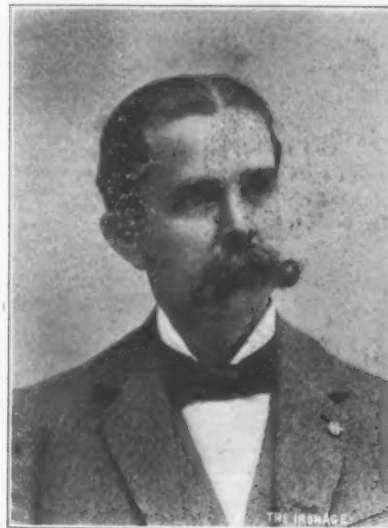
Resolved That this association is opposed to the proposed Parcels Post bill and urges upon its membership the use of their influence against it, as wrong in principle, laying upon the Post Office Department work which does not belong to it and by which its efficiency would be seriously impaired, and at the same time involving an enormous expenditure of public money for the carriage of merchandise which can more properly and economically be done by private enterprise.

GENERAL DISCUSSION.

Through the Question Box and in connection with the papers presented and various subjects discussed, a number of practical matters relating to the conduct of business were considered by the convention. Among these were the subjects:

NET PRICES, and especially as to the inconvenience of having goods invoiced by the jobbers at net prices instead of through list or discount. There was an impression among the members that jobbers were to an increasing extent resorting to the use of net prices, and many of the members expressed themselves emphatically as disapproving of such practice, as it rendered it much more difficult for them to keep track of the prices at which they were purchasing.

TRADING STAMPS.—The annoying influence of trading stamps was alluded to by some of the merchants, and the



J. M. SELHEIMER, President.

manner in which this disturbing element was removed in some cases was described. The fact that there is a bill before the New York Legislature to terminate this practice was referred to with approval.

ADVERTISING METHODS.—There was an interesting discussion on Wednesday afternoon in regard to methods of advertising both in newspapers and circulars, as well as through special ingenious means of attracting the public attention. A number of practical suggestions were then elicited and the discussion of the subject was helpful and instructive.

BARGAIN SALES.—There was some difference of opinion among merchants as to the feasibility of having bargain sales in connection with a regular line of hardware. In some cases, however, they had been found satisfactory, and the means of disposing of goods and securing the public attention.

MAILING LISTS.—It was generally conceded that it is desirable for merchants to have a carefully compiled list of customers or prospective customers to whom circulars, circular letters, etc., can be sent. The difficulty of obtaining the names for such a list was referred to by one or two of the merchants, and various methods used for compiling such list were explained.

SPECIAL BRANDS.—The question as to whether retail merchants should look with favor upon jobbers' special brands of tools was considered by the convention. The general sentiment was evidently against the jobbers' brands, one merchant making the point that the manu-

facturer might be depended upon to put his own name on his best goods.

CATALOGUE HOUSES.—There was abundant evidence that the merchants of Pennsylvania are becoming familiar with the disturbing influence of catalogue house competition, although this method of distribution is not as yet as prevalent in Pennsylvania as in some of the Western States. Various suggestions were made in regard to how this competition can best be met. Statements made by the president of the National Association in regard to the success which had attended efforts on their part to prevent the cutting of leading goods at demoralizing prices were listened to with much approval by the convention.

ADDRESS OF JAMES N. KLINE.

We are told by the navigators that there is a river in the ocean, and, unlike the rivers of the land, it is never affected by the severest droughts and in the mightiest floods it never overflows. It has its fountain head in the waters of the Gulf, that sweep from Panama to Key West, and its mouth is in the frozen seas around the North Pole. It is the wondrous Gulf Stream, the current



J. E. DIGBY, Secretary-Treasurer.

of which runs along our Atlantic Coast. There is in all the world no other such mighty flow of waters. This curious yet well-known phenomena in the physical world has its counterpart in the commercial world, for through all the channels of trade and commerce throughout the world there flows the mighty current of the products of the workers in metals. Old Tubal Cain has had many millions of toilers through all the ages, and the number of his workmen and their handiwork is larger to-day than ever; and amidst all the eddies and currents that swirl and dash upon the shores of time, in the ever-flowing river of commerce, is the dealer in iron and steel and brass and copper and tin—who, through all these various channels, is known as the Hardwareman. You find him distributing the products of the mightiest mills and the humblest workshops. This is a progressive age, and we who live in these times must keep pace with the times or suffer the penalty of being pushed aside, or becoming back numbers and "has beens."

THE ENERGY AND ENTHUSIASM

that comes from meetings of men is what brings order out of chaos, and this is why we are met in a respectable and proper meeting to try by proper methods to attain honorable and self respecting results, and this we propose to do in a spirit of fairness and proper respect and toleration for the rights and opinions of others.

This State organization is but three years old. Many of the younger States of the Union have their organizations more fully matured than we have, but the fact that about 5000 Hardware houses are represented in the

movement, which is charged with looking after the interest of the retail Hardware dealers in the several States of the Union, is an evidence of the energy with which the growth of the movement is being fostered. Now, to make this organization effective and to bring the desired results every merchant in this line of trade, whether he be in the stir and pressure of the larger towns or cities or in the more secluded and smaller places, should be made to realize that

HE IS PART OF AN ORGANIZATION

that is doing something that can and must and will help him individually. There are many things that belong within the scope of the organization, whereby the co-operation of its members are needed to make things go. Information is needed in regard to interferences that come to all dealers of our class, whether by jobbers, manufacturers, catalogue houses or otherwise, which should deserve the best consideration of all broad minded and progressive Hardware merchants.

The Retail Hardware Dealers' Association is making progress on these very lines. Annual meetings have accomplished much good, not only in the way of substantial benefits, but in social relations also. The Steel Range peddler is not so much in evidence as he was; very many manufacturers of standard goods have learned that it is to their interests to sell to the retailer rather than to the catalogue house.

ALL THIS HAS BEEN BROUGHT ABOUT BY ORGANIZATION.

Of course, the dealer who has contributed neither time nor money to attain these results has shared the benefits with us, but let us have hope for him still. The immortal Bard has told us that

"Conscience has a thousand several tongues,
And every tongue brings in a several tale,
And every tale condemns him in the wrong."

That he must in time awake to a realizing sense of his duty, goes without saying. The social part of these meetings are their strongest feature. What a pleasure it is to know something of the personality of our fellow toilers from the West, from the East, from the North and from the South of our State. You no longer feel that you are only so and so, selfishly plodding along in your hum-drum vocation, but you realize that you are a part of an organization not even bounded by your State, but that you are a part of a national organization that reaches into 19 or more States.

Now we believe in legitimate competition—it is the life of the trade and a protection to the purchaser, and an incentive to us all to have up to date business methods; and, on the other hand, we are opposed to trust organizations, because they wipe out all competition; but, after all, the most significant feature in the advanced changes in the Hardware trade to-day has been the broadening of the minds and views of the average dealers, showing

GREATER TOLERATION FOR THE RIGHTS AND OPINIONS OF OTHERS

engaged in the same line of trade, where in the past the dealer became soured at his neighbor and stayed sour and mad by loss of trade. To-day he does not repine, but goes at once to work, to find new trade and create better conditions by using energy and common sense, with the result that he discovers, after all, that his hated competitor is rather a good sort of a fellow, now that he knows him better. We believe that the *personnel* of the men who are identified with the retail Hardware trade in Pennsylvania are among the very best of the citizenship in this grand old commonwealth, of which we are all so proud.

PARCELS POST.

All of the State associations have had much to say of late regarding the Parcels Post bill, and as most of you have read up on this matter, I shall not go into the details, for the subject is certainly a broad one, but if any of you have not investigated the question fully, or are inclined to undervalue the danger to you of the catalogue houses, or doubt for a moment that they are not behind the attempted vicious national legislation, let such a doubter or such a seeker after knowledge read the last report of the Postmaster-General of the United States, and he cannot help but conclude that the United States

mail routes are even now being worked by the catalogue houses with the names of prospective purchasers, copied from the assessment lists of your own township, village and town, so that the paid agents of the Government are made to act in conjunction with the railroad companies and the express companies in distributing the bulky publications of the catalogue houses, and, as that official says, has opened a way for severe loss of revenue to the postal service. But that abuse would be but a trifle should the Postal Progress League accomplish their scheme of greed and selfishness by being enabled to send merchandise through the mails in parcels of 3 ounces for 1 cent; over 3 ounces and up to 6 ounces, 2 cents; over 6 ounces and up to 9 ounces, 3 cents; over 9 ounces and up to 12 ounces, 4 cents; over 12 ounces and up to 1 pound, 5 cents; and in larger parcels, for each additional pound, or fraction thereof, 2 cents; making the rate on a 11-pound parcel, 25 cents.

The Postal Check, or Post Currency, referred to in this same report of the Postmaster-General is without doubt fathered by the same people that are behind the Parcels Post bill. Now the Post Currency bill, like the Rural Free Delivery, is a legitimate object, but the Parcels Post is a measure that is born of greed and is being exploited by schemes of greed, and if it is ever passed it will be by means of bribery and boodle. And before it is born as a fact, as it is now conceived in the minds of the so-called Postal Progress League, it should be forever branded as an illegitimate and unacknowledged bastard, for whom there is no place in free America.

In this land of ours we boast of the quickest mail delivery service in the world, whereas this graft would completely swamp the facilities, and all letter mail would, instead of reaching its destination in the shortest possible time, be delayed; and, further, we believe it is wrong and unwise for the Government to interfere unduly in the domain of private enterprise, and contrary to the right principle of Government to permit the transmission of goods by mail at a loss to the Government.

FIRE INSURANCE.

Now a word as to co-operative fire insurance. We are all buying and must expect to continue to buy old line insurance from our friends and neighbors who are the local agents; but are the methods of these companies the best for us? Is their logic always sound? It is a well known fact that among all old line stock companies no adequate and efficient system exists for

CHECKING MORAL RISKS.

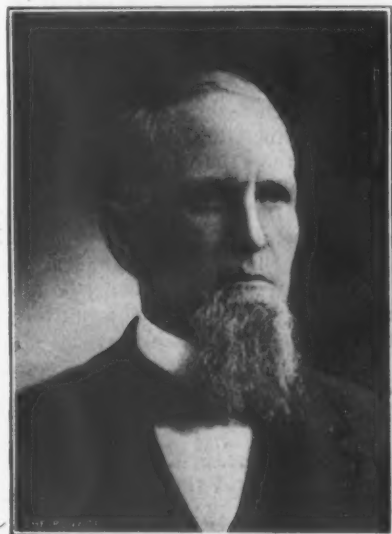
Almost all insurance people, from the president of the largest companies down to the humblest broker or local agent, will tell you that they fear the moral risk by far the most. It is also equally well known that the vast majority of fire losses (aside from casualties in the large cities, such as the Chicago or Boston fire, or the but recent Baltimore holocaust), are consequent upon moral laxities of some kind or other, chief among which may be classed gross negligence and carelessness, and, to avoid a harsher term, we will say other preventable conditions; for with the great majority of applicants for insurance it is impossible with the prevailing methods of the old line companies to properly gauge the qualities of the applicant. The question is, Cannot much loss be avoided by fire insurance companies in their carefully seeking to lower the danger signals that form the greater part of the causes of many of their fire losses and to increase the facilities for extinguishing the same? Now, we believe

THE MOST EFFICIENT MEASURE FOR IMPROVING FIRE CONDITIONS

is to enlist personal selfishness on the part of fire prevention. Insurance men have said that many people seem to buy fire insurance because it allows them to become more careless; such conditions should not exist. Fire insurance should not be bought or sold from any such standpoint, and, further, many insurers are beginning to realize that they are classed with the undesirable elements who come in by the same way and buy insurance of the same companies, paying the same price as the careful buyers of insurance, with their years of good record to

their credit. They who have never had a fire loss must necessarily pay the indemnity given these classes, who do have fires frequently, whether accidentally or otherwise. Therefore, is it not possible to form among such a body of men that go to make up the Retail Hardware Dealers' Association of the United States a closely welded mutually protective company of men rigidly defined in regard to business, moral and physical hazard, so as to not be burdened by losses arising from elements more dangerous than themselves, whether the dangers are incident to the business conducted, or as to the character of the person engaged in it, and by having these risks so guarded that only a carefully graded body of men, who can qualify as to a proper record in the past and a rigid compliance with the rules of safety required, can become policyholders in a company of preferred risks, selected practically by themselves, and these risks so distributed throughout the States, and the towns, cities and villages of a State, that it would be practically impossible to have large losses at one time or at one place?

Now as to the progress made by this organization of the retail Hardware dealers of Pennsylvania; there can



GEO. L. MOORE, Ex-President and Member of Executive Committee.

be no question that the organization is making progress, that it is forging ahead. General Grant said the way to resume was to resume; now, the way to have a strong organization, is not only to organize, but to work and keep working.

WORK YOURSELF,

don't put all that part of the organization up to and on to the officers and the Executive Board. Don't think that when you have joined and paid your dues that is all of your duty, and that the organization will go right on and work for you, and earn you benefits without your working for it. Start right in now by creating friendships where none existed. You can create sociability where it has been a stranger heretofore. You may say, Yes, that sort of thing is easy for some, but it is too much for me, and that you are not equal for the occasion. You are mistaken; this is an age when men must utilize all their capacity. Alexander the Great, when asked how it was that he always won victories, replied, "Ability to win, and confidence in my ability." With confidence in your ability you have half the battle won. When Napoleon was about to invade Italy he reached the base of the Alps, and halted the invincible army. Above them towered the snow clad peaks that pierced the clouds; awful chasms, deep and dark ravines, ragged and jutting cliffs, beneath which ran the path of the awful avalanche, whose victims lay by thousands beneath their winding sheet of snow. The men of the army gazed and hesitated, and was it any wonder they did? Was it strange if they thought it was better to go around instead

of overcoming those mighty hights? But that matchless leader of men, the greatest military genius the world has ever known, the man of destiny, pointing toward the towering peaks, gave the command forward; onward beyond the Alps lies Italy; the Italy of your dreams.

WORK WITH ENTHUSIASM FOR YOUR ORGANIZATION

and your dreams will be realized; take an interest in it, and you will become a factor in its success. But do not expect the president and the secretary to be the general and the army; you must be the soldier, and stand at the post of duty, actively supporting the organization. If you have confidence in their ability and your own ability you must co-operate; neglect to do so is shirking duty. You cannot preach this doctrine too strongly, for in developing co-operation and system is where you educate your members. Why, you can all give information that has never been given the officers, and information that will help the association. The time is here when more interest is being evinced, the tide is rising, the Pennsylvania organization is being closely watched by manufacturers and jobbers. The national organization is moving along at a rapid rate, and the old Keystone State must not be a laggard in this all important work of having a strong organization—for in war, or in peace, in Church or in State, in commercial affairs or professional life.

PENNSYLVANIA NEVER BRINGS UP THE REAR,

and we believe this association will soon be in point of membership an organization where she belongs, and that is at the head of the column of States. I know that I am not unduly enthusiastic, I am not overzealous, for I have the utmost faith that through the labors of the Pennsylvania Association and the associations of other States, there will be reared a bulwark of defense that will guard you from many an act of oppression and wrong, that will carry pleasure and profit to every dealer, so that many of the mistakes and errors of the past in this line of merchandising will be but memories along the path of progress.

Men, my brothers, men the workers,
Ever reaping something new,
That which they have done
But the earnest of the things that they shall do.

ADVERTISING THAT PAYS.

George V. Thompson of Mt. Jewett read the following paper on "Advertising that Pays":

I realize the importance of this subject to the man in business, and the more I study the question the more I realize its importance, and if I shall succeed in saying anything that will cause us to give the subject more thought I will feel repaid for my effort. I expect to derive more benefit from the discussion that will follow by other members here than you will from anything I may say. You will, therefore, see that my motives are somewhat selfish.

There is an old rhyme that runs like this:

He who has a thing to sell,
Who goes and whispers it down a well,
Is not so likely to collar the dollars
As he who climbs a tree and hollers.

And as it is the dollars we are after in this case, it would seem to be wise for us to let the people know what we have to sell. The only question is how best to do this. Some one has said that "Trying to do business without advertising is like winking at a girl in the dark; you know what you are doing, but nobody else does."

Many people seem to think in order to attract attention it is necessary to make assertions about our goods and prices that are not true, representing that we are selling at or below cost, &c., when we are not. I think our advertising should be done on as honest and straightforward a basis as any other part of our business.

THERE ARE MANY LEGITIMATE AND HONORABLE WAYS OF ADVERTISING.

P. T. Barnum was the greatest advertiser of the past century, but while the Barnum theory, which we hear so often quoted, "I don't care what the people say about me just so they continue to talk about me," might do for the show business, it would hardly do for one engaged in the

retail Hardware business, located permanently where usually his reputation forms a large portion of his stock in trade. While we cannot agree with Barnum that we do not care what people say about us, we, nevertheless, recognize the fact that it is necessary to have the people talk about us and our store, and in order to do this it is necessary to make a little noise. Hence we are reminded:

The whole world loves the quiet man

Who's as silent all day as the owls;

But it's needless to mention it gives its attention

To the fellow that gets up and howls.

We mean by this that it is necessary to let the people know that we are alive; that we have the right goods at the right prices and are anxious to serve them. The many ways of doing this, which have been recently discussed in *The Iron Age* and *Hardware Dealers' Magazine*, such as newspaper advertising, show window advertising, sign boards, circulars, personal letters, catalogues, arrangement of store, &c., are all good and well worth our while to read and ponder; but do not ponder too long—go ahead and do something. Do it in your own way; do not try to



GEO. V. THOMPSON.

imitate some one else too closely; allow your individuality to assert itself.

Newspaper advertising, which is undoubtedly one of the best means of reaching the people, especially the farmer, has been so thoroughly discussed in our trade journals that it is impossible for me to offer anything new on the subject, and I therefore merely repeat what others have said. Do not exaggerate.

WHEN YOU ADVERTISE AN ARTICLE IN THE PAPER BE SURE TO HAVE THE GOODS IN STOCK.

Use space enough to give your ad. a good appearance, do not be afraid to show a little white paper in the ad., use a cut or something to make your ad. attractive. We think it a good idea to quote some prices. Advertise seasonal and special goods; change your ad. frequently. Last Christmas we had a full page holiday advertisement in the newspaper and had 1000 extra copies struck off in the form of a dodger at a reduced cost. These we distributed and tacked up as posters in conspicuous places, and had the satisfaction of noting an increase in our holiday trade of 50 per cent. over last year, although general business in our town was not nearly so good this year as last.

CLUBBING TOGETHER ON A CATALOGUE.

Another little thing we did in the way of advertising last year was to get out a catalogue of household goods. This we did by uniting with a number of merchants in distant towns, using the same for the inside, the heading and covers being printed differently for each one. We were thus able to place this in the hands of our customers at an expense of about 5 cents each, including postage.

The fact that many of our customers referred to the catalogue convinced us that we derived benefit from it.

In planning our new store, which we completed a couple of years ago, we arranged it with a view of

MAKING THE GOODS ADVERTISE THEMSELVES.

First we purchased an outfit of the Warren Shelving on which samples of goods are displayed under glass; next we made all counters for displaying goods in the center of our store 39 inches high, with shelving underneath, so that one can see over the entire room, 48 x 98 feet, from any point. This enables many of our customers who are foreigners and cannot speak English to select goods without difficulty. We also have a number of glass show-cases in the front of our store with special lines of goods, such as Cutlery, Silver Ware, Oriental China, Cut Glass, etc. We might also mention in this connection a revolving Linoleum rack which enables us to display ten patterns and to get at any one of them with very little trouble. While the first cost of this mode of advertising is considerable, when once established you have a permanent ad. without any further expense.

In conclusion, I would say that the best advertising will fall to secure permanent customers unless backed up by goods at right prices, courteous treatment by clerks, and sterling honesty on your own part.

RESOLUTIONS OF THANKS.

In addition to the resolution adopted early in the convention thanking the Entertainment Committee for the manner in which their work was performed, the following resolutions were adopted at the closing session:

Resolved, That the thanks of this association be tendered to W. P. Bogardus, president of the National Retail Hardware Dealers' Association, for his presence and counsel at this meeting, thus contributing greatly to the usefulness and success of the gathering.

Resolved, That this association gratefully acknowledges the services rendered by R. R. Williams, whose presence and advice as well as his active interest in the association work are highly appreciated by this convention.

Resolved, That we extend to the retiring officers our sincere thanks for the earnest and efficient manner in which they have served the association.

PLACE OF NEXT MEETING.

The Committee on Place of Next Meeting, consisting of A. B. Neyhart, H. B. Young and J. H. Bowers, recommended that the meeting of the association next year be held at Harrisburg. This recommendation was unanimously approved by the convention.

ELECTION OF OFFICERS.

At the closing session of the convention the Committee on Nominations recommended the election of the following officers for the ensuing year:

PRESIDENT, Joseph M. Selheimer.

VICE-PRESIDENT, George V. Thompson.

EXECUTIVE COMMITTEE: For one year, George W. Hackett and J. E. Digby; for two years, James N. Kline and George L. Moore.

James N. Kline and the secretary-treasurer, to be chosen by the Executive Committee, were elected as delegates to the meeting of the National Retail Hardware Dealers' Association in March.

THE BANQUET.

An elegant banquet was given to the members of the association and the representatives of the jobbers and manufacturers who were present. James N. Kline of Williamsport, an enthusiastic and earnest friend of the association, whose presence and counsels contributed greatly to the success of the convention, officiated as toastmaster. This selection was a most happy one, and Mr. Kline's remarks introducing the different speakers were felicitous and forcible, and much enjoyed by the guests. The addresses in response to the toasts were for the most part in a light vein and were entirely free from anything tending to make them wearisome or otherwise than thoroughly enjoyable. The toast list was as follows:

Our National Association, W. P. BOGARDUS.

Our State Association, GEO. L. MOORE.

The Manufacturer and the Distributer, W. J. RYAN.

The Trade Journal, R. R. WILLIAMS.

The Traveling Salesman, JAS. H. REED.

A very interesting address was also made by Rev. J. R. Baker of Williamsport. Music was furnished by Stopper and Fisk's Orchestra, and vocal selections were given by George R. Koons. Harry S. Meyer, who was introduced as an ironmonger in view of his early connection with the trade, entertained the company with some selections admirably rendered.

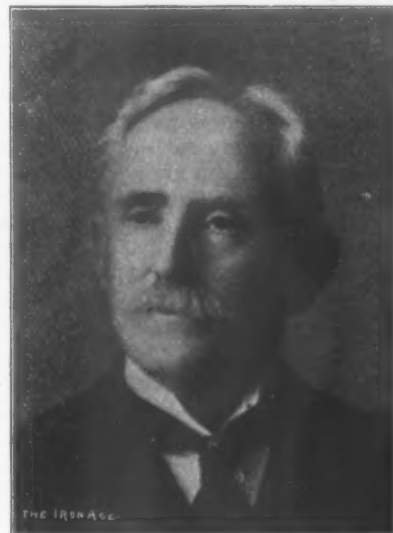
THE RELATION OF THE SALESMAN TO THE DEALER.

BY JAMES H. REED OF THE PITTSBURGH STOVE & RANGE COMPANY, PITTSBURGH.

This subject must be considered mainly from a business standpoint. For the association of the merchant and salesman is brought about by the existing commercial customs and methods.

The business man, whether he be a merchant, a manufacturer, or a promoter of enterprises, is a servant of humanity. He assists in providing those things which are necessary to sustain life or which add to its comfort and happiness.

It is the effort of our business men, directly and indirectly, that has developed our country and made us the foremost commercial nation of the earth. It is due to



JAS. L. KLINE.

their energies that we have the supplies to feed the world and that we have the factories and appliances to turn our natural resources into those products which find ready sale in every land.

Other countries are as well blessed in raw materials as ours, but energy and enterprise have placed this nation 100 years ahead of others.

IN TURNING ITS ADVANTAGES TO USEFUL ACCOUNT, the American business men, that they may the more successfully promote our commercial expansion, have entered the field of politics. Figuratively speaking, they are the "power behind the throne." They mold our national as well as our social and commercial policies. They have never allowed the "leisure class" as a class to get a foothold on our shores. They have elevated labor and given every wage earner the opportunity and encouragement to become the greatest among them all.

In the field of national politics and of international affairs American business men have met with flattering success. Note our Diplomatic Corps, which is selected mainly from among our business people. How do they acquit themselves? Are we not all proud of their records? The professional diplomats of the Old World may call them amateurs and sneer at their "shirt sleeve" methods, but success usually crowns their efforts and their opponents often find themselves much in the same plight as the Irishman who attempted to catch the wildcat.

It is with two great subdivisions of our business men that the salesmen have to do. They occupy the middle ground between their employers and their customers. They are sent out to represent that part of our commercial energy known as the manufacturer and the jobber. They are to exploit their wares and lay all the advantages of their lines before people of intelligence and discernment.

They are expected to make their pilgrimages pay. They have to get business or make room for those who can. Nothing else will answer. They have to get it. They soon learn that all a merchant wants, if he be a normal man, is a good, clean, square deal.

THE FATAL ERROR.

The day has gone by when a buyer simply wants to know the price of an article. He now asks carefully about its quality. At this point comes the strongest temptation for the junior salesman. He is liable to draw a little upon his imagination for "extra quality." This is the fatal error. It pays to be frank. It may lose *that* sale, but it will establish confidence. This confidence will soon ripen into a mutual friendship, and such friendships are necessary to success on the road. It is doubtful if any one thing has a greater influence upon a salesman's success than

HIS ABILITY TO MAKE FRIENDS.

I do not mean his ability for fawning, but his actual, genuine friendliness. For a man cannot be really friendly without inherent truthfulness. There is much hypocrisy in the world of business, but the man who wins permanent success must be sincere. It is a fact beyond all cavil that the friendly man is the one sought for upon all occasions. He is a never failing source of inspiration to his associates. All of you have salesmen calling upon you who are always welcome; you are glad when they come; you are sorry when they go. They get your business and you get their bargains. Each is anxious to do the best he can for the other. What is this binding tie between you? This unseen force that attracts you both? *It is friendship.* Friendship and honesty form the roadbed and ambition is the motive power on the main line to commercial success.

MANUFACTURERS REPRESENTED.

The following manufacturers were represented at the convention, and several of them made attractive displays of their products:

E. C. ATKINS & Co., Indianapolis, Ind.: A. S. Bailey of New York, and D. R. Branson of Du Bois, Pa.
PETERS CARTRIDGE COMPANY, Cincinnati, Ohio: George R. Benjamin of New York.
WHITE LILY WASHER COMPANY, Davenport, Iowa: P. R. Searle.
THE NEW JERSEY WIRE CLOTH COMPANY, Trenton, N. J.: S. McClelland and William K. Paff.
THE YALE & TOWNE MFG. COMPANY of New York: Anson T. Babcock.
P. & F. CORBIN, New Britain, Conn.: John W. Ryan.
CHARLES E. DODD, Williamsport, Pa., representing the A. J. Phillips Company, Smith & Hemenway Company, Voigt, Starr & Co. and the Avery Stamping Company.
NATIONAL LEAD & OIL COMPANY, Pittsburgh, Pa.
PITTSBURGH STOVE & RANGE COMPANY, Pittsburgh, Pa.: James H. Reed.

Souvenirs were given out by several of the above manufacturers, as follows: New Jersey Wire Cloth Company, leather pocket book for bills; E. C. Atkins & Co., miniature Saw for stick pin; Yale & Towne Mfg. Company, ash receiver; Pittsburgh Stove & Range Company, box of cigars; Peters Cartridge Company, miniature Cartridge as a stick pin; National Lead & Oil Company, court plaster in holder.

REVISED CONSTITUTION AND BY-LAWS.

A number of revisions were made in the constitution and by-laws, which now read as follows:

CONSTITUTION.

ARTICLE I.

Section 1. The name of this organization shall be the Pennsylvania Retail Hardware Dealers' Association.

Sec. 2. The object of this association shall be to promote

the welfare of the retail Hardware trade in Pennsylvania and create among its members confidence in each other.

ARTICLE II.

Any person or firm engaged in the retail Hardware business in good standing and carrying a general assortment of stock may become a member of this association by subscribing to the constitution and paying the annual dues prescribed by the by-laws.

ARTICLE III.

The officers shall consist of a president, vice-president and secretary-treasurer. The president and four members elected by the convention shall constitute the Executive Committee.

ARTICLE IV.

Section 1. The president and vice-president, after the adoption of this constitution, shall be elected for one year, or until their successors are chosen. Two of the members of the Executive Committee shall be elected for one year and two for two years, and each succeeding election two members shall be elected for two years, or until their successors are elected. At the first election after the adoption of this section the two members receiving the highest number of votes shall be declared elected for two years, and the two receiving the next highest number of votes be declared elected for one year.

Sec. 2. It shall be the duty of the president to preside over all regular and called meetings, to exercise supervisory control over the affairs of the association, to carry out and enforce all measures adopted by the association.

Sec. 3. It shall be the duty of the vice-president to officiate for the president in his absence or disability.

Sec. 4. It shall be the duty of the secretary to keep a record of all the meetings of the association or the Executive Committee, conduct all correspondence, notify all committees of their appointment, keep a list of the members in a book kept for that purpose, make and keep a correct account of all fees and dues received and all amounts paid out; he shall, with the president, sign all certificates of membership; shall report the standing of his office when called upon to do so by the Executive Committee, and shall perform such other duties as pertain to his office.

Sec. 5. The Executive Committee shall elect a secretary-treasurer and shall pay him such salary as may be deemed necessary.

Sec. 6. Any vacancies occurring in office during the year, by death or otherwise, shall be filled by the Executive Committee.

ARTICLE V.

Section 1. The annual meeting of this association shall be held in February, at a date to be set by the Executive Committee, the place to be selected at each convention.

Sec. 2. The order of business shall be:

1. Roll call of members.
2. Reading of minutes of last regular and called meetings.
3. Reports of committees.
4. Report of secretary-treasurer.
5. New or unfinished business.
6. Propositions for the good of the association.
7. Adjournment.

ARTICLE VI.

Amendments to the constitution may be made at any regular meeting of the association by the vote of at least two-thirds of the members present. Ten days' notice shall be given to members of any proposed change in the constitution or by-laws.

ARTICLE VII.

An Auditing Committee of three shall be appointed the first day of each annual meeting, which shall examine the books of the secretary-treasurer and report their condition to the association.

BY-LAWS.

Section 1. The Executive Committee shall meet at least once each year, besides the time of the annual meeting, and oftener if so requested by the president.

Sec. 2. The admission fee to membership shall be \$4 in advance, which fee shall cover all dues until the next annual meeting. The annual dues shall be \$4, payable at such regular meeting.

Sec. 3. All fees and dues must be paid before a member can be recognized as a member or become entitled to act in the association.

Sec. 4. Any member may delegate, in case of unavoidable absence, a representative, who must be a member or an employee of said firm or corporation, to represent them at any meeting of the association, who shall present written credentials of the firm or corporation he represents.

Sec. 5. Each firm or corporation shall be entitled to one vote.

Sec. 6. Any session of this association shall be "executive" when so decided by the Executive Committee, to which only bona fide members and such other persons as they may designate shall be admitted.

Sec. 7. Any person, firm or corporation can be expelled from membership for cause.

Sec. 8. Cause of expulsion: Nonpayment of dues. Any member being two years in arrears may be suspended from membership in the association. When members do not work in harmony with the objects and aims of the association, or divulge and indiscreetly make known to nonmembers the business affairs of the association.

MEMBERSHIP.

Following is a list of the members of the association:

Alten, Jno. W., East Pittsburgh.
 Albee & Seltz, Galetton.
 Anderson Hardware Co., New Bethlehem.
 Buckholdt, W. A., Charleroi.
 Bowers, J. H., Charleroi.
 Bidaux, F. A., Titusville.
 Berkey, T. L., Bolivar.
 Bryan, S. S., Titusville.
 Bodine, Geo. A., Bradford.
 Baumann, Jacob, Pittsburgh.
 Braddock Hardware & Supply Co., Braddock.
 Boreland Bros., Washington.
 Bantley, Albert G., Windber.
 Bergtusser, S. E., Mt. Carmel.
 Bond & Cooper, Rockwayville.
 Buoy, John Y., Milton.
 Coulter, John H., Brownsville.
 Casselberry, A. Q., Pittsburgh.
 Cover, P. J., & Son, Meyersdale.
 Craig Hardware Co., Mars.
 Compton, S. R., Harrisburg.
 Conn, I. N., Point Marion.
 Cribbs, Jno. R., & Son, Verona.
 Craft, D. N., Uniontown.
 Colvin, S. B., Mt. Pleasant.
 Cockburn, James, Williamsport.
 Crowell, Theo., Kane.
 Cunningham, Jas., Dushore.
 Darsie, E. H., Donora.
 Dickson & Co., New Castle.
 Digby & Smith, McKees Rocks.
 Donaldson, J. S., Beaver.
 Dewey, E. L., & Co., Waynesburg.
 Dick, J. I., Scottdale.
 Difenderfer, W. P., Lewisburg.
 Dobbins, Jno. E., Troy.
 Everts, E. D., Corydon.
 Elmer Hardware Co., Galetton.
 Elliott, W. J., Canonsburg.
 Elcher & Graft, Scottdale.
 Edmunds & Williams, Braddock.
 Fulton & Maggini, Braddock.
 Frye, J. F., Belle Vernon.
 Fox, L. C., Irwin.
 Fry & Gilmore, Uniontown.
 Frisbee Hardware Co., Connelville.
 Fear, Geo. E., Brownsville.
 Fleming, R. R., & Co., Houtzdale.
 Franklin Hardware Co., Franklin.
 Fredericks, J. H., & Bro., Lock Haven.
 Gregg, Albert M., Monongahela City.
 Greensburg Hardware Co., Greensburg.
 Gunn Tool & Supply Co., Pittsburgh.
 Glessner, H. S., Meyersdale.
 Crowell, A. J., Rockwood.
 Grove Bros., West Milton.
 Holderbaum, J. B., Somerset.
 Hare, E., & Son, Fayette City.
 Hackett, Geo. W., Sunbury.
 Howe, Jno. F., Freedom.
 Hegner, Geo. H., Sewickley.
 Hays & Coulter, Swisvaile.
 Hayes Cg. & Hardware Co., Limited, Union City.
 Helm, W. H., Sunbury.
 Holmes & Gillilan, Smethport.
 Insko & Insko, Toga.
 Kellerman, L. F., McKees Rocks.
 Kline & Co., Williamsport.
 Kernochan & Co., Titusville.
 Linck, J. H., Williamsport.
 Lindsay, J. T., Bellevue.
 Little, J. A., Washington.
 Lieb, A. W., Williamsport.
 Lindley & Ronan, Canton.
 Love, David F., Montgomery.
 McKnight, Samuel, Allegheny.
 McCurdy, T. S., Monongahela City.
 Moore, Geo. L., Brownsville.
 McKean, J. S., & Sons, New Kensington.
 Miller, C. H., Hardware Co., Huntingdon.
 Munnell, Samuel, Canonsburg.
 Mendelssohn & Clairton Hardware Co., Wilson.
 Miller, Arthur L., Uniontown.
 Malony, J. J., & Son, Hughesville.
 Mendenhall, S., & Son, Montoursville.
 Nelson, E., Gallitzin.
 Neyhart, A. B., Williamsport.
 Oakland Hardware Co., Pittsburgh.
 Olewine, Jno. I., Bellefonte.
 Poellot, H., & Sons, Bridgeville.
 Paul & Post, Washington.
 Peltz, E., Cross Fork.
 Reid Bros., Braddock.
 Rudolph, Geo. J., Pittsburgh.
 Rowbottom, Geo. W., Jr., Allegheny.
 Raup, H., Judson, Milton.
 Ray, S. & L. S. W., Blairsville.
 Redfield, H. H., Smethport.
 Stevenson, A. N., Renova.
 Selheimer, J. M., Lewistown.
 Seaman, Jno. W., Washington.
 Spragg, M. G., & Son, Donora.
 Shipley Hardware Co., Meyersdale.
 Shroyer, C. O., Dawson.
 Savage, C. N., California.
 Sloterbeck, J. P., & Son, Fayette City.
 Steuler, John, Millvale.
 Salisbury, L. H., Albion.
 Steele, Chas. H., Charleroi.
 Smith Hardware Co., Kane.
 Salyards, M. D., Pitcairn.
 Scarborough, Klaus, Pittsburgh.
 Smith, Max C., Pittsburgh.
 Smith Bros., Pittsburgh.
 Solenberger, A. F., Chambersburg.
 Sniveley, Ryder, Harrisburg.
 Stainer, Thos., Hazelwood.
 Sprowls, Geo. B., Claysville.
 Spragg, Wood & Miles, Waynesburg.
 Schell, P. A., Somerset.
 Smith, Hutton & Kirk Co., New Castle.
 Stewart, J. M., & Co., Indiana.
 Thompson, Geo. V., & Co., Mt. Jewett.
 Taylor Hardware Co., Allegheny.
 Trissinger, C. W., & Co., Berlin.
 Van Dyke & Co., Lock Haven.
 Wilson Hardware Co., Belle Vernon.
 Wickenhelsen & Harmon, Coraopolis.
 Wilson, Wm. L., Jersey Shore.
 Wurster, L., Williamsport.
 Wyle Bros., Elizabeth.
 Young & Madquick, McDonald.
 Young, H. B., Mifflinburg.

tridges are loaded with a special smokeless powder, are extremely accurate and are made for the pocket model of the automatic Colt pistol. Another important cartridge is the .22 automatic rifle Winchester model, 1903, which is likewise loaded with a special smokeless powder, extreme accuracy being also a feature. Among other .22 caliber smokeless cartridges made by the Union Metallic Cartridge Company, are the .22 short smokeless ungreated, .22 long smokeless ungreated and .22 Winchester smokeless, model 1890. These cartridges are loaded with the special smokeless powder, and are specially recommended by the makers for their accuracy and cleanliness, the latter feature being an advantage which permits of their being carried in the pocket without soiling it.

Crelo for Shaving.

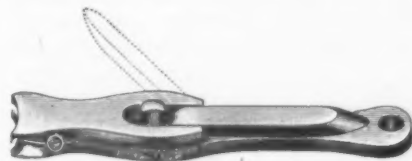
Edgar F. Carson, South Bend, Ind., is offering Crelo, a preparation in the form of a paste, to take the place of soap for shaving. The manufacturer explains that it does not cause the face to smart and sting like soap, but that it is cooling and healing to the most tender skin. No shaving mug or brush is necessary, as the paste can be applied to the face with the hand. The paste is referred to as more convenient for commercial travelers, hunters, tourists, fishermen, &c., than soap, and that it requires less room in carrying. Upon application to the manufacturer, a sample will be sent free to any one wishing to try Crelo.

Pike's Lily White Pocket Stone.

The Pike Mfg. Company, Pike, N. H., have recently put upon the market knife stones made from their Lily White Washita grit and put up in attractive display boxes for counter display. The stone is 3½ inches long, ¾ inch wide and 5-16 inch thick, a convenient size and shape for carrying in the pocket, and of suitable size for sharpening pen knives, ink erasers, scissors and all small tools. It is neatly labeled with a *fac-simile* of the label which appears on the regular Lily White Washita oil stone. The display box is strong, neatly printed and arranged with an easel by means of which it can be stood upon a counter or in a show window.

Snow's Nail Clipper, File and Cleaner.

L. T. Snow, New Haven, Conn., Smith & Hemenway Company, 296 Broadway, New York, sole selling agents, have put on the market the No. 691 Snow compound lever nail clipper, file and cleaner, here shown. It is 2½ inches long over all, the dotted lines in the illustration showing the operating lever raised as in use, which



Snow's Nail Clipper, File and Cleaner.

working against the stout center pin gives a good fulcrum. This lever can also be used as a cleaner, the inner side of it also having a file surface for finishing. It is made of steel, nicked and polished, and the cutting edges are such that portions of the quick or a hang nail can easily be removed as well, if necessary. The clippers are put up on ornamental cards of one dozen.

STORE DISPLAY FIXTURES.

MCKENNA BROS. BRASS COMPANY, Pittsburgh, Pa., issue Catalogue M, 128 pages, devoted to Store Display Fixtures. These include Fixtures for hats, shoes, also Notched Bracket Fixtures, Stands, Keyhole Strip and Shelf Brackets, Extension Plate Glass Supports, Shelf Brackets for showcases, Wall Brackets, Card Holders, Towel Racks, Window Guards, Brass Stair Treads, Electric Desk Fixtures, Office Railing, Brass Grilles, &c.

MISCELLANEOUS NOTES.

A Series of New Cartridges.

The Union Metallic Cartridge Company, Bridgeport, Conn., and 313-317 Broadway, New York, have put on the market from time to time, comparatively recently, a number of new cartridges which, so far as they have been introduced, have been well received. Among these are the .32 automatic Colt pistol cartridge, supplied in both metal cases and soft point bullets. Those with metal cases are adapted for target purposes, the cartridges having soft point bullets being intended for sporting use. These car-

White Lily Washer Company, Davenport, Iowa, had one of their washing machines on exhibition at the recent meeting of the Pennsylvania Retail Hardware Dealers' Association at Williamsport. This machine is of the rotary type with a fly wheel 22 inches in diameter, weighing 20 pounds, of the direct spoke type, throwing as much weight as possible to the rim. The washer has a neat and durable finish; coach varnish is used on the wood work,

the hoops are covered with aluminum bronze, the hinges and handles are finished in black enamel and the fly wheel in red enamel. The company refer to the favor with which the washer is received by the Hardware trade, one Western house having recently purchased 100 of the machines.

The Handy Mail Box.

The accompanying cut represents a mail box put on the market by the Sheet Metal Specialty Company, Canton, Ohio. The device is referred to as being an ornament

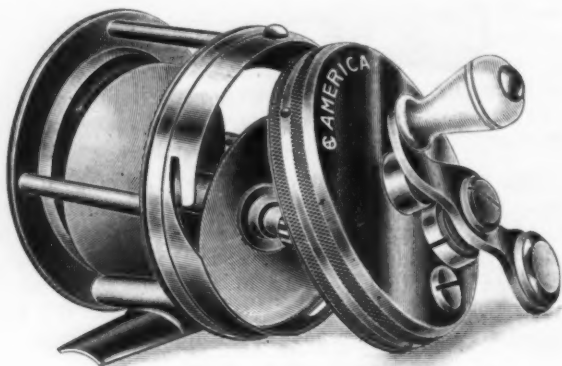


The Handy Mail Box.

in itself, as being well constructed and stamped in sheet metal and enameled in colors. The box works automatically from the bottom in a simple and convenient manner.

America Ball Bearing Reels.

The accompanying cut represents take down or take apart reels, offered by the America Company, Rockford, Ill. The ease with which the reels can be taken apart for cleaning, oiling and getting at a tangle is referred to by the makers, also the fact that an extra spool is supplied with each reel so as to allow the angler an easy interchange of lines. Every bearing in the reels is a ball bearing, and no reel is sent from the factory, it is explained, which will spin less than forty seconds with the spool empty. Among points of excellence, the following are



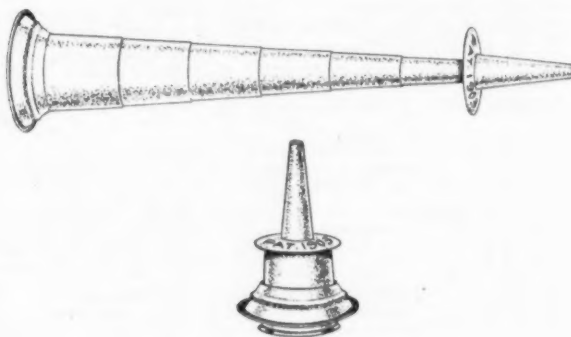
America Ball Bearing Reels.

noted: That the reel is simple, positive and almost instantaneous; that it takes less momentum from bait to overcome inertia of spool, and therefore a further cast is possible; that it is responsive; that fish can take line from the reel as he needs it, and the angler can tell to a nicety

when to strike and always has his line without slack and under control of the reel. The gears are German silver and steel and the spools are German silver. The reels are supplied with standard click and drag, and are made in 60 and 80 yard sizes. The company have secured the services of Silvanus Meek of Frankford, Ky., formerly a member of the firm of B. F. Meek & Sons, reel makers, and are prepared to receive orders for high grade America-Meek hand made reels.

The American Boy Collapsible Horn.

We show herewith a collapsible horn, which the Galesburg Cornice Works, Galesburg, Ill., are manufacturing and marketing. The illustrations represent the horn extended and collapsed. The horn is made of bright tin in sections which telescope together. When fully extended

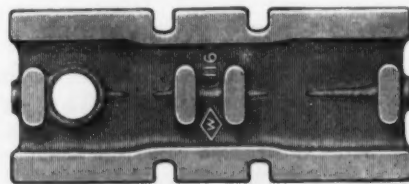


The American Boy Collapsible Horn.

it is 14 inches long, when collapsed $4\frac{1}{2}$ inches, and 3 inches in diameter. Aside from its mechanical features, the horn is a great noise producer, and the manufacturers state a good seller for campaigns, carnivals, foot ball and other games, holidays, &c. The horns are packed one dozen in a strong cardboard box.

Internal Double End Caliper Gauge.

The J. H. Williams Company, Hamilton avenue, and Richards street, Brooklyn, N. Y., have just supplemented their line of drop forged external caliper gauges, single and double end, by the addition of a double end internal caliper gauge, as here illustrated. This gauge is drop forged from mild steel suitable for case hardening, and is designed for manufacturers of any kinds of goods for which fixed gauges are wanted, which only themselves are best qualified to finish to meet constantly varying conditions. The lettering panels and sides of jaws are on



Drop Forged Internal Caliper Gauge Blank.

the same plane, and may be finished by a single grinding or polishing operation. It will be seen that four classes of gauges may be made from one forging: 1, A plain gauge, single dimension both ends; 2, gauge with one end of exact dimension, other end for two limits allowed; 3, gauge with any two dimensions within range of table limits; 4, gauge of the "go in" and "not go in" variety, two combinations. They are made in six numbers, 110 to 120 inclusive, with capacities from 1 to 3 inches, extreme dimensions 3 to $6\frac{1}{8}$ inch lengths and 1 11-32 to $3\frac{1}{8}$ inch widths. The dimensions of the measuring pad are lengths 1 to 25-16 inches and widths 9-32 to $\frac{1}{2}$ inch, with length of center pad from $\frac{5}{8}$ to 1 inch, inclusive.

Stevens Little Krag Single Shot Rifle.

J. Stevens Arms & Tool Company, Chicopee Falls, Mass., have recently brought out the rifle herewith shown. It is referred to as simple and strong, and as having features peculiar to itself as a boys' firearm. It has new style peep sights and a 20-inch round barrel. It is chambered to take the .22 long rifle cartridge, hence it will

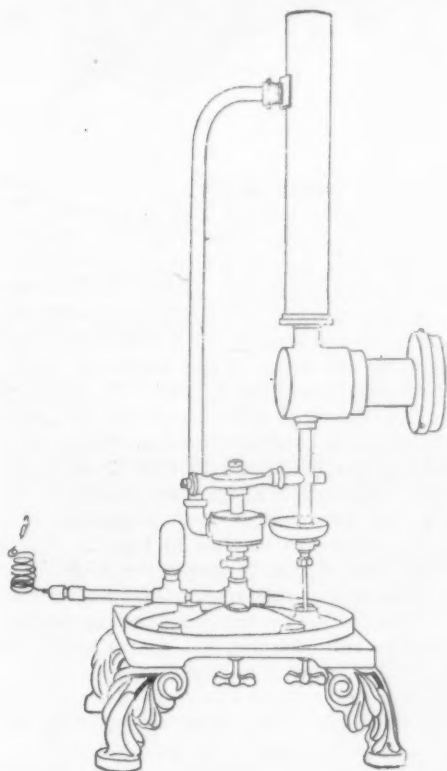


Stevens Little Krag Single Shot Rifle.

also handle the .22 long rim fire and .22 short rim fire cartridges and C. B. caps. The rifle weighs $3\frac{3}{4}$ pounds and is packed one in a box in take down form.

A Gas Generator.

The gas generator shown in the accompanying cut is manufactured by the White Mfg. Company, 192-194 Michigan street, Chicago, Ill. The generator is referred to as producing a hydrocarbon gas of great illuminating power, adapted to lighting stores, halls, churches or any place where a brilliant light is required. The manufacturers state that the gas generators are so simple in their construction and so easy to operate that any one, however inexperienced, can install and run them successfully. They are so compact they occupy a space of only 12 inches square, and may be placed on a shelf or table anywhere in the room. All the working parts are made of cast



A Gas Generator.

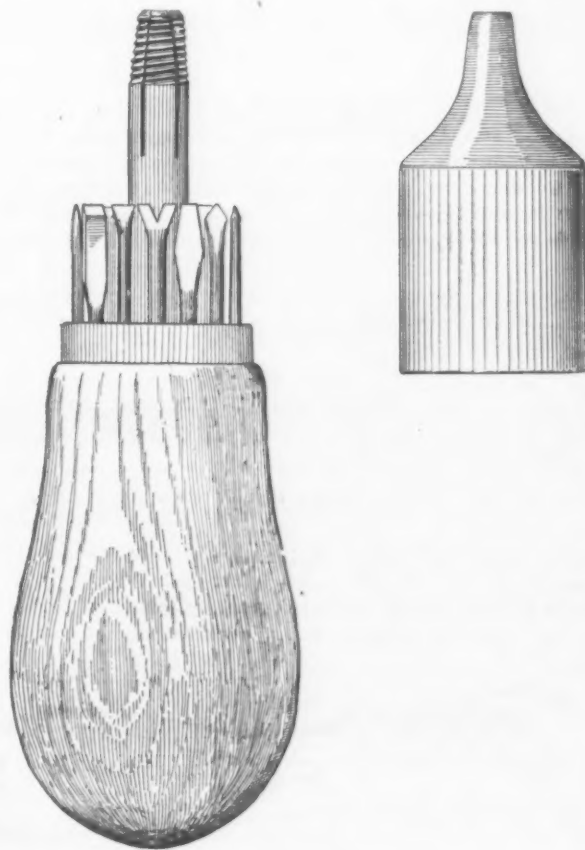
brass and are interchangeable. The generator is mounted on an iron base and inclosed in a metal hood to protect it from drafts of wind, and is built on very substantial lines. The generator is kept heated from a subflame, which is supplied by gas from expansion chamber, which automatically feeds the sub-burner that keeps up constant generation. The gasoline is conveyed to the generator through a $\frac{1}{8}$ -inch hollow brass wire from a tank, which may be placed either in or outside of the building,

any distance away. This is one of the most important features of the device, as there is no volume of gasoline near the heating or operating point. Every machine is fully tested by actual burning before sending out. It is a complete, individual gas plant, and alluded to as ever ready, reliable and easily operated. The gas is produced by the gasoline passing through the heated generator into the air mixing chamber, where it becomes thoroughly

carbureted with air, thus forming a hydrocarbon gas. It then passes through the supply pipes to each lamp, which is lighted like any ordinary gas jet, no further generating being necessary. The cost of operating is governed by the cost of gasoline at the point of installation, which, on an average, it is stated, is 50 to 75 per cent. cheaper than gas, electricity or acetylene for lighting purposes. The company offer to ship to any responsible party one of the Air Light gas plants, to be paid in monthly installments. They are fully guaranteed in every particular.

Improved Universal Tool Holder.

The Rollis Hardware Company, 107 Chambers street, New York, manufacturers of mechanics' tools and specialties, have put on the market an improved form of tool holder, the illustration of which herewith is of actual size. The nickel plated steel ferrule is so made that when screwed into position on the threaded center pin or



Improved Universal Tool Holder.

chuck that holds the tools the ferrule is flush with the wood handle, which is of hardwood, highly polished and finished in a rich red. There is little change in the tools from those made heretofore, which consist of various sized

awls, screw driver, chisel, tack claw, reamer, pointed awl or scriber, &c. The tools are recessed in the wood handle with a brass cap, through which they pass to give permanency.

Empire and Lightning Wrenches.

William Hjorth & Co., Jamestown, N. Y., are offering the wrenches shown in the accompanying cuts. The Empire wrench, shown in Fig. 1, is of dropped forged steel, carefully tempered and highly polished. The arrange-



Fig. 1.—A New Hammerless Gun.

ment is such that it does away with a nut adjustment and can be changed or set instantly to the required size of pipe. Emphasis is placed upon the strength of the wrench and absence of strain in the head. It has an interchangeable wearing jaw, and is referred to as not locking upon pipe, but releasing at once with a slight

as well as being a wire cutter, screw driver and nail or tack puller. It is made in 6, 7, 8 and 12 inch sizes, to take pipe from $\frac{1}{8}$ to 1 inch.

A New Hammerless Gun.

The accompanying cuts represent the double barrel hammerless gun that the Tobin Arms Mfg. Company, Norwich, Conn., are offering to the trade this season. The makers claim that they have solved the difficulty of opening and closing a hammerless gun without extra effort.



Fig. 2.—Lock Mechanism of New Hammerless Gun.

pressure of the thumb on the movable shaft jaw. It is pointed out that the wrench can be made to do close work on account of its having no thumb screw in the way, and that it will never clog or need oiling. The wrench is made in three sizes—10-inch, range of opening $1\frac{1}{4}$ inches;

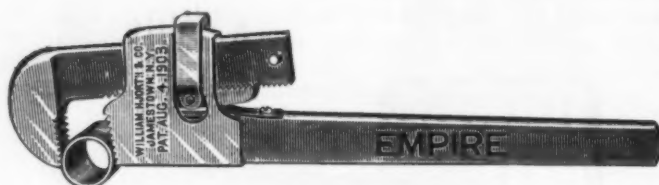


Fig. 1.—Empire Pipe Wrench.

14-inch, range of opening $2\frac{3}{4}$ inches, and 18-inch, range of opening $3\frac{1}{2}$ inches. The wrench illustrated in Fig. 2 is made of drop forged tool steel, properly tempered, highly polished, and is referred to as being put up in a good



Fig. 2.—Lightning Combination Wrench and Plier.

workmanlike manner. It is alluded to as taking pipe without crushing, and as always being ready without adjustment. The wrench is also designed for use on nuts,

It is explained the usual resistance of the cocking levers has been so far overcome that the weight of the barrels is more than sufficient to open the arm to receive cartridges. The lock parts are so constructed that they can be removed and replaced without requiring any tools but an ordinary screw driver to remove the lock plate, this

exposing all the important working parts. An effort has been made in producing the gun to combine all the important "little gun features" and to furnish to the sportsman an arm that is well made, well balanced, has good appearance, works well and is thoroughly dependable. The gun is what is known as full side lock plate style, and is so constructed, it is pointed out, that very little metal is cut away at the angle of frame, where greatest strength is required. The bolt, of the extension rib type, is referred to as the most reliable for insuring great strength and wearing qualities. The general use of nitro powder has been kept in view in construction, so that greatest strength is given where required. The novel feature of the gun that is most noticeable is the lock mechanism, which can be seen in Fig. 2. The V mainspring is so placed that it serves the double purpose of cocking lever and mainspring. On opening the gun to receive cartridges the lower arm of the mainspring pushes the hammer to full cock position, shown in cut; this operation blocks the triggers with safety bolt. When closing the gun the mainspring returns to its first position, as the expansion naturally causes it to do so. This brings the lower arm of the spring to the extreme point of contact on the hammer, where greatest leverage is exerted for its operation. To further overcome friction the makers have perfected a link connection with the cocking cam at fore-end joint, so that the cam, instead of being pivoted on its own axis, forms a floating fulcum with the link that permits the part of contact with mainspring to follow up the same when operated as a cocking lever without any friction at point of contact. The gun is furnished in two styles—with blue steel barrels and with Krupp nitro steel barrels; weighs $6\frac{1}{2}$ to $7\frac{3}{4}$ pounds, and will be furnished only in 12 gauge at present. Smaller gauges will be made later.